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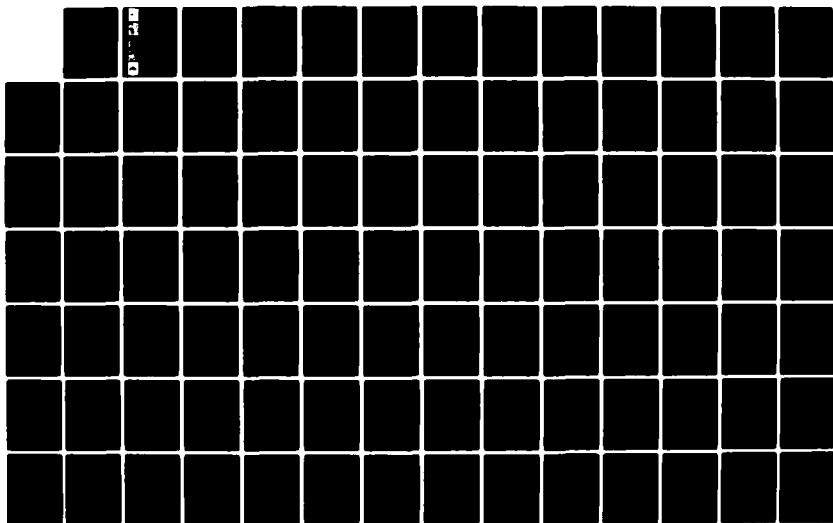
COMPENDIUM OF ABSTRACTS ON STATISTICAL APPLICATIONS IN
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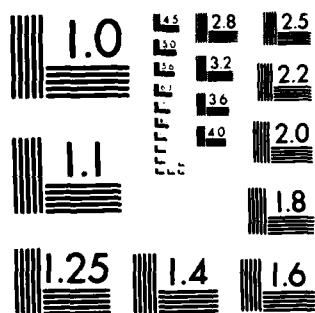
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MISCELLANEOUS PAPER GL-83-27

COMPENDIUM OF ABSTRACTS ON STATISTICAL APPLICATIONS IN GEOTECHNICAL ENGINEERING

by

Mary Ellen Hynes-Griffin, G. W. Deer, Editors

Geotechnical Laboratory

U. S. Army Engineer Waterways Experiment Station

P. O. Box 631, Vicksburg, Miss. 39180



September 1983

Final Report

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The results of a literature search of geotechnical and statistical abstracts are presented in tables listing specific topics, title of the abstract, main author and the file number under which the abstract can be found.		

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PREFACE

This compendium of abstracts on Statistical Applications in Geotechnical Engineering was compiled by personnel of the Earthquake Engineering and Geophysics Division (EEGD), Geotechnical Laboratory (GL), U. S. Army Engineer Waterways Experiment Station (WES). This literature search is part of CWIS Work Unit No. 31755 on Probabilistic Methods in Engineering Geology. This work unit is part of the Rock Research Program in the Materials Research Area for Civil Works Research and Development.

The abstracts listed within do not necessarily reflect the policies of the U. S. Army Corps of Engineers.

The list of abstracts was compiled and edited by Ms. Mary Ellen Hynes-Griffin, Dr. G. Wendell Deer and Ms. Linda L. Buege, EEGD. The work was performed under the general supervision of Dr. A. G. Franklin, Chief, EEGD, and Dr. William F. Marcuson, III, Chief, GL.

COL Tilford C. Creel, CE, was Commander and Director of WES during the preparation of this report. Mr. F. R. Brown was Technical Director.

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APPENDIX D: COMPENDEX (FILE 8)	D1
APPENDIX E: GEOARCHIVE (FILE 58)	E1
APPENDIX F: GPO MONTHLY CATALOGUE (FILE 66)	F1
APPENDIX G: GEOREF (FILE 89)	G1

COMPENDIUM OF ABSTRACTS ON STATISTICAL APPLICATIONS
IN GEOTECHNICAL ENGINEERING

PART I: INTRODUCTION

1. Interest and research in the application of probabilistic and statistical methods to soil mechanics, rock mechanics, and engineering geology problems have grown markedly over the past 2 decades. Evidence to support this observation comes from an ongoing 6-year research program on this subject that began in January 1982 at the U. S. Army Engineer Waterways Experiment Station. In order to survey current applications of probability and statistics in geotechnical engineering, an extensive, computer-assisted literature search was conducted through the DIALOG Information Retrieval Service from DIALOG Information Services, Inc. The search covered the period September 1961 through September 1982. Five computerized abstract services were contacted: NTIS (from the National Technical Information Service, NTIS, U. S. Department of Commerce, Springfield, Virginia), COMPENDEX (from Engineering Information, Inc., New York), GEOARCHIVE (from Geosystems, London, England), GPO Monthly Catalogue (from the U. S. Government Printing Office, Washington, D. C.), and GEOREF (from the American Geological Institute, Falls Church, Virginia). A total of 1886 abstracts were obtained from logical combinations of the key words: probability, statistics, soil mechanics, rock mechanics, and engineering geology.

2. The purpose of this report is to make available to the U. S. Army Corps of Engineers this specific collection of abstracts in a usable form. The abstracts have been indexed in two ways: First, by the geotechnical subject addressed, and second, by the statistical or probabilistic technique employed. Although probability theory is the underlying mathematical theory for statistics and statistics can be described as the application of probability theory to analyze data, the word "statistical" will be used throughout the remainder of this report to mean both "statistical" and "probabilistic." Descriptions of the Subject Index (in Appendix A) and of the Statistical Technique Index (in Appendix B) follow. The abstracts are placed in the Appendices according to their source: Appendix C: NTIS (File 6), Appendix D: COMPENDEX (File 8), Appendix E: GEOARCHIVE (File 58), Appendix F:

GPO Monthly Catalogue (File 66), and Appendix G: GEOREF (File 89). The abstracts appear generally in reverse chronological order within each file.

PART II: GEOTECHNICAL SUBJECT INDEX

A review of the 1886 items obtained led to the selection of the 50 geotechnical subject areas listed in Table 1. For each subject area, the abstracts are listed by file code (given in Table 2) which identifies which Appendix the abstract is located in, page number (within the file), first author's last name, and title of the paper. This information uniquely identifies any abstract in Appendices C through G. The location of this key information on a typical page of abstracts is shown in Figure 1.

The subject areas appear in alphabetical order in the Subject Index in Appendix A. The papers appear, roughly, in reverse chronological order. To use the subject index, select the subject areas in Table 1 that best correspond to the specific subject of interest, look up these subject areas in Appendix A, scan the main author's names and titles of the papers for each subject area, and select a final list of abstracts to be looked up in Appendices C through G. For example, if one is interested in statistical approaches to rock slope stability, one might select subject areas: Rock Slope Stability and Pit Mines; Rock Fractures and Joints; Rock Strength, Stress and Deformation; and Statistical Analysis of Rock Mechanics and Engineering Geology Data. From the subject area index, Rock Slope Stability and Pit Mines, suppose the abstract of a paper by McMahon on page 2213 of File 8 (COMPENDEX) was selected. One would look in Appendix D for File 8 (from Table 2) and search for file page 2213. This abstract can then be identified by the title and main author's last name. This particular abstract is shown in Figure 1.

Table 1
List of Geotechnical Subjects Indexed

Blasting, Impact Loading and Cratering	Rock Fragmentation and Crack Propagation
Buried Structures	Rock Mass Classification
Compaction and Quality Control	Rock Permeability
Conference Proceedings and Indices	Rock Slope Stability and Pit Mines
Deep Foundations and Anchors	Rock Strength, Stress and Deformation
Dynamic Response Analysis	Seepage, Soil Permeability and Piping
Earthquake Engineering, Seismology, Seismic Risk Analysis and Response Spectra	Settlement and Heave
Faulting, Folding and Volcanoes	Shallow Foundations
Frozen Ground	Site Investigation Planning
General References	Slurry Trench Walls
Geophysical Testing of Rock	Soil Fabric
Geophysical Testing of Soils	Soil Slopes, Embankments, Dams and Excavations
In-Situ Testing of Soils	Soil Strength and Constitutive Models
Landslides and Avalanches	Soil-Structure Interaction: Static and Dynamic Loading
Land Use and Regional Planning	Statistical Analysis of Rock Mechanics and Engineering Geology Data
Lifelines and Pipelines	Statistical Analysis of Soil Mechanics Data
Liquefaction, Dynamic Soil Properties and Dynamic Design	Stratigraphic Correlation, Mapping and Regional Surveys
Nuclear Power Plants	Subsidence
Offshore Technology	Trafficability
Pavements	Underground Openings: In-Situ Testing, Design and Performance
Petroleum and Geothermal Engineering	Underground Storage and Waste Disposal
Reinforced Soil	
Reliability, Decision Analysis and Optimization	
Remote Sensing and Terrain Analysis	
Retaining Walls and Braced Excavations	
Rock Fabric	
Rock Foundations	
Rock Fractures and Joints	

Table 2
Abstract Services and File Codes

<u>Abstract Service</u>	<u>File Code</u>	<u>Appendix</u>
NTIS (National Technical Information Service)	6	C
COMPENDEX	8	D
GEOARCHIVE	58	E
GPO Monthly Catalogue	66	F
GEOREF	89	G

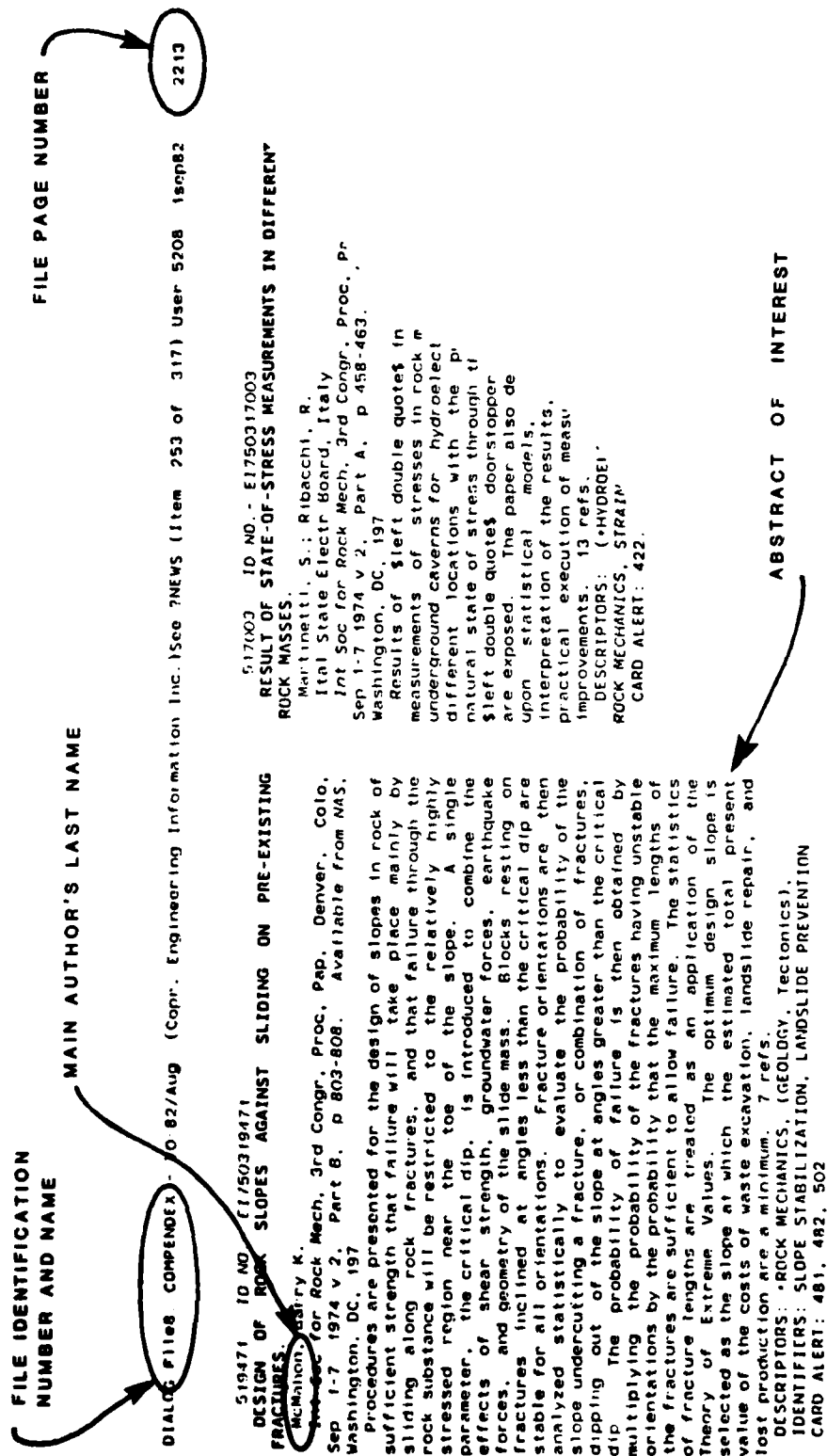


Figure 1. Location of key information necessary to find abstracts in the Appendices

PART III: STATISTICAL TECHNIQUE INDEX

Whenever a particular statistical technique was mentioned in the abstract, this technique was then included in the Statistical Technique Index. Since many of the abstracts (more than 50 percent) do not specify the technique used, this index is less comprehensive (with respect to all the abstracts) than the Geotechnical Subject Index. A total of 12 statistical techniques were identified during the review of the abstracts. These are listed in alphabetical order in Table 3. The Statistical Technique Index, given in Appendix B, is organized in the same manner as the Geotechnical Subject Index. The statistical techniques headings appear alphabetically in the index, and for each heading, the appropriate file codes, page numbers, main author's last names, and titles are listed. For instance, to find examples of the use of multiple linear regression in geotechnical problems, one would scan the list of abstracts in the statistical technique heading, Multiple Linear Regression, and look up the selected abstracts in Appendices C through G.

Table 3

List of Statistical Techniques Indexed

Analysis of Variance
Bayesian Statistics
Correlations
Discriminant Analysis
Factor Analysis
Markov Processes
Multiple Linear Regression
Probabilistic Modeling
Risk Analysis
Simulation
Stochastic Techniques
Time Series Analysis

APPENDIX A: GEOTECHNICAL SUBJECT INDEX

Blasting, Impact Loading and Cratering

<u>Page No.</u>	<u>Main Author</u>	<u>Title</u>
<u>File 6</u>		
2093	Abildskov	Investigation of blast resistant water well concepts
2095	Isenberg	Statistical estimations of geological material model parameters from cylindrical in-situ test data
2097	Smith	Pressure and gravity effects on the simulation of meteorite impact craters
2097	Ayala	Experimental stress analysis of overpressure facility for Project Hest II, Minuteman Missile Site D-1
2100	Dillon	The influence of soil and rock properties on the dimensions of explosion-produced craters
2102	Stavnitser	Formation of elastoplastic deformations of soil under impact compression
2111	Rollins	Penetration in granite by shaped charge liners of various metals
2129	Van Dyke	Fracture of rock due to high pressure, short duration loadings
2143	Morrey	Underground explosion theory
<u>File 8</u>		
2188	Lutton	Probability of specified ground vibrations from blasting
2206	Ko	Dynamic behavior of pit slopes in response to blasting and precipitation
<u>File 58</u>		
2229	Pozdnyakov	A statistical approach to determination on the pressure at an explosives - rock boundary
<u>File 89</u>		
1835	Pelz	Finite element study on earth covered structures subject to blasting and impact loading
1998	Nelson	Numerical solution of problems involving explosive loading
2014	Santich	Dynamic models of rock blasting
2027	Lutton	Probability of specified ground vibrations from blasting
2053	Schubart	Influence of the blasting technique and the structure of the deposit on the intensity and distribution of earthquakes caused by blasting
2108	Lynch	Distance attenuation of response spectral data from underground nuclear detonations
2240	Lutton	Probability of specified ground vibrations from blasting

Buried Structures

<u>Page No.</u>	<u>Main Author</u>	<u>Title</u>
<u>File 89</u>		
1920	Rude	A study of the imperfect ditch method for rigid culverts
1835	Pelz	A finite element study on earth covered structures subjected to impact loading
1980	Kay	Design approach for circular buried conduits
1981	Quigley	Earth pressures on conduits and retaining walls
2046	Duncan	FEM analysis of buried flexible metal culvert

Compaction and Quality Control

<u>Page No.</u>	<u>Main Author</u>	<u>Title</u>
<u>File 6</u>		
2090	Brabston	Investigation of compaction criteria for airport pavement subgrade soils
2104	Torrey	Analysis of field compaction data
2123	Jorgenson	The statistical approach to quality control in highway construction Phases II and III
2130	Smith	Investigation into the uses of statistical procedures in specification writing and quality control
2130	Jorgenson	The statistical approach to quality control in highway construction, Phase I
2135	Blackwell	An investigation of nuclear methods of determining moisture contents and the compacted densities of soils and aggregates
2135	David	Quality control of construction by statistical tolerances
2136	McDonald	Statistical quality control study base course
2138	Watkins	Applications of statistical specifications for highway construction
2139	Van Houten	Characteristics of compacted embankments
2139	Nielson	Characteristics of compacted bases and subbases
2140	Williamson	An investigation of compaction variability for selected highway projects in Indiana
2142	Shah	Quality control analysis, Part II
2142	Sherman	A statistical analysis of embankment compaction
2144	California Division of Highways	A basic study of the nuclear determination of moisture and density
<u>File 8</u>		
2149	Lovell	Compactive prestress in shales
2188	Maul	Determination of the bulk density of cohesionless soils in inclined ground
2220	Kraft	Acceptance specification of compacted soils
<u>File 58</u>		
2233	Sherard	Discussion of Kotzias et al., statistical quality control at Kastraki earth dam
2233	Coumoulos	Discussion of Kotzias et al., statistical quality control at Kastraki earth dam
2233	Kotzias	Statistical quality control at Kastraki earth dam
<u>File 89</u>		
1888	Carroll	Compaction of dry or fluid-filled porous materials
1895	Essigmann	Method for specifying soil compaction
1896	Livneh	Using indicative properties to predict the density-moisture relationship of soils
1896	Vanzyl	Storage, retrieval, and analysis of compacted shale data
1896	Price	Predicting field compacting strength and variability
1900	Ozawa	Application of numerical methods to design and construction control of soil structures in Japan
1933	Aggour	Analytical determination of earth pressure due to compaction
1991	Soares	Application of the statistical method in control of compaction of soils

Conference Proceedings and Indices

<u>Page No.</u>	<u>Main Author</u>	<u>Title</u>
<u>File 6</u>		
2127	Berg	NSF-UCFEEER Conference on Earthquake Engineering Research, March 10-11, 1967, California Institute of Technology, Pasadena, California
<u>File 8</u>		
2164		5th International Conference on Port and Ocean Engineering under Arctic Conditions, Trondheim (1979)
2169		3rd International Conference on Numerical Methods in Geomechanics, Aachen (1979)
2174		3rd International Conference on Applications of Statistics and Probability in Soil and Structural Engineering, Sydney (1979)
2176		2nd South Pacific Regional Conference on Earthquake Engineering, Wellington (1979)
2198		2nd International Conference on Application of Statistics and Probability in Soil and Structural Engineering, Aachen (1975)
2220		4th Annual Offshore Technology Conference, Houston (1972)
2220		International Conference on Microzonation for Safer Construction Research and Application, Seattle (1972)
2221		North American Rapid Excavation and Tunneling Conference, Chicago (1972)
<u>File 58</u>		
2234		Comprehensive dissertation index supplement A73, Volume 2, Sciences
<u>File 89</u>		
1904	Wittke (Editor)	Numerical Methods in Geomechanics: Vol. 4, Additional Contributions
1991	Schultze (Editor)	Speciality Session 6; The probabilistic approach to soil mechanics design. 9th International Conference on Soil Mechanics and Foundation Engineering, Tokyo, Japan, 1977
2011	Gudehus (Editor)	Finite Elements in Geomechanics, Karlsruhe, Germany, 1975
2063	Mahieu	Methodologic study of the utilization of a card-index of engineering geology data; documentation, cartography, statistical analysis
2072	Lumb	First International Conference on Applications of Statistics and Probability to Soil and Structural Engineering, Hong Kong, 1971

Deep Foundations and Anchors

<u>Page No.</u>	<u>Main Author</u>	<u>Title</u>
<u>File 6</u>		
2108	O'Neill	Behavior of axially loaded drilled shafts in Beaumont clay, Part 3, field tests
2114	Dunlap	Long term overturning loads on drilled shaft footings
2122	Kovacs	Pile driving by means of longitudinal and torsional vibrations
2136	Airhart	Pile-soil system response in clay as a function of excess pore water pressure and other soil properties
2147	Michigan State Highway Commission	A performance investigation of pile driving hammers and piles
<u>File 8</u>		
2150	Dight	Prediction of shear behavior of joints using profiles
2154	Preis	Statistical considerations in pile testing
2155	Balasubramaniam	Performance of friction piles in Bangkok subsoils
2156	Kissenpfennig	Integrity and as-built capacity of bored pile group
2166	McAnally	Ultimate load foundation design using statistically based factors
2173	Madhav	Pile capacity-a reliability approach
2173	Rizkallah	Estimation of the bearing capacity of large bored piles in cohesive soils using statistical methods
2174	Kramer	Applicability of regression analysis to investigate the influences on the carry capacity of ground anchors
2176	Kamey	Relative accuracy and modification of some dynamic pile capacity prediction equations
2178	Stockard	Case histories-pile driving in the Gulf of Mexico
2189	Brenner	Measurement and prediction of vibrations generated by drop hammer piling in Bangkok subsoils
2202	Wagner	Statistical optimization of friction pile foundations
2217	Trow	Temporary and permanent earth anchors
2221	Tejchman	Model investigations of pile groups in sand
<u>File 89</u>		
1827	Kagawa	Lateral pile response during earthquakes
1849	Wang	Method of influence function and its application
1890	Nuti	Dynamic soil-structure interaction in a pile of bridge pile foundations
1900	Parikh	Parametric analysis of axially loaded concrete pile in nonhomogeneous cohesive and cohesionless soil deposits
1915	Wakita	Analysis of group pile foundation subjected to lateral loads by two-dimensional finite element method
1919	Silvandran	Probabilistic analysis of stability and settlement of structures on soft Bangkok clay
1921	Nemec	Skin resistance tests of model piles in hard rocks
1932	Prieto	A finite element method analysis of the earth anchor-soil system
1934	Withiam	Analytical model for drilled shaft foundations
1934	Smith	Installation and performance of piled foundations
1935	Randolph	The effect of pile permeability on the stress changes around a pile driven into clay
1935	Prater	Analysis of laterally loaded piles
1935	Rove	A method for predicting the effect of piles on slope behavior
1936	Bonevjee	An Eulerian formulation of the finite element method for predicting the stresses and pore water pressures around a driven pile
1964	Lytton	Foundations in expansive soils
1965	Poulos	Settlement of pile foundations
1965	Reese	Laterally loaded piles
1971	Boulon	Method for calculating the behavior of piles in extraction
1982	Ottaviani	Observed and predicted test pile behavior
2005	Davis	Numerical approximations in pile-driving analysis
2028	Prieto	Earth anchors; load transfer analysis using photoelastic, analytic, and finite element methods
2034	Goto	Studies on practical idealization of soil-pile-group system concerning dynamic interaction
2071	Costello	Probability and economical foundations
2072	Nair	Response of soil-pile systems to seismic waves
2074	Nottingham	Use of quasi-static friction cone penetrometer data to predict load capacity of displacement piles
2077	Ottaviani	Three-dimensional finite element analysis of vertically loaded pile groups

Dynamic Response Analysis

<u>Page No</u>	<u>Main Author</u>	<u>Title</u>
<u>File 6</u>		
2107	Taylor	Dynamic response of rectangular footings in clay and sand
<u>File 8</u>		
2153	Michalopoulos	Measurement, selection and use of dynamic soil properties in design
2154	Spanos	Statistics of structural responses to seismic waves filtered through rock and soil formations
2158	Gazetas	Random vibration analysis for the seismic response of earth dams
2167	Tomizawa	Identification of a one-dimensional model for a soil-layer-bedrock system during an earthquake
2182	Singh	Stochastic seismic stability prediction of earth dams
2182	Dendrou	Uncertainty finite element dynamic analysis
2196	Crandall	Biaxial slip of a mass on a foundation subjected to earthquake motions
2227	Liu	Spectral simulation and earthquake site properties
<u>File 89</u>		
1825	Plischke	Methods of calculations in the investigation of dynamic loading in rock structures
1833	Pande	Shakedown of elasto-plastic continuum with special reference to soil-rock structures
1834	Aboustit	Finite element linear programming approach to foundation shakedown
1841	Sridharan	Prediction of frequency and amplitude of foundations at resonance
1847	Belkune	Free response of shells on flexible foundation
1847	Chicknagappa	Stiffness coefficients for imbedded footings
1848	Omachi	Analyses of dynamic shear strain distributed in three-dimensional earth dam models
1848	Lin	Seismic deformation of dams by correlative methods
1858	Vrymoed	Dynamic FEM model of Oroville Dam
1858	Lukkunaprasit	Dynamic plastic analysis using stress resultant finite element formulation
1859	Emery	Seismic response of underground openings
1876	Kausel	Transmitting boundaries; a closed-form comparison
1876	El-Shafee	Dynamic axisymmetric soil model for a flexible ring footing
1893	Kunar	A model with non-reflecting boundaries for use in explicit soil-structure interaction analyses
1899	Spanos	Statistics of structural responses to seismic waves filtered through rock and soil formulations
1917	Kawasaki	Seismic response analysis of composite ground treated by deep chemical mixing stabilization method; Part 1, Analytical Method
1923	Goto	Wave propagation and its characteristics due to underground loading
1963	Christian	Two- and three-dimensional dynamic analysis
1963	Roesset	Soil amplification of earthquakes
1987	Matsumoto	A comparison between measured and computed response of Yuda Dam during the July 8, 1976 earthquake; northern Japan
1995	Smith	Analysis of dynamically loaded structures and foundations
1996	Haupt	Numerical methods for the computation of steady-state harmonic wave fields
2020	Desfulian	Finite element grids for dynamic response analysis
2021	Kuribayashi	An application of finite element method to soil-foundation interaction analysis
2021	Akay	Earthquake analysis of Keban Dam
2021	Naumovski	Earthquake response of continuous media using dynamic relaxation
2021	Hamada	Behaviors of the alluvial layers on the sloped bed rock during earthquakes
2030	Singh	A stochastic method for seismic stability evaluation of earth structures with strain dependent properties
2031	Eskin	Plane vibrations of saturated soil in structural foundation
2031	Moss	The seismic behavior of river valleys
2031	Ayala	Boundary conditions in soil amplification studies
2032	Okamoto	Study of effects of a berm on the stability of rockfill dams during earthquakes
2032	Takevaki	Characteristics of semi-infinite element and its application to dynamic problem
2032	Finn	Seismic analysis of dam-reservoir-foundation systems
2042	Dunger	The dynamic response of gravity platforms
2049	Roesset	Transmitting boundaries; a comparison
2058	Rosenbluth	Optimum seismic design and research of single-degree systems
2064	Udaka	Analysis of response of large embankments to traveling base motions
2065	Faccioli	A stochastic approach to soil amplification
2072	Nair	Response of soil-pile systems to seismic waves
2088	Spang	Numerical dynamic analysis of quartz deformation lamellae and calcite and dolomite twin lamellae
2090	Roth	A factor of safety approach for evaluating seismic stability of slopes
2134	Herrera	Earthquake spectrum prediction for the Valley of Mexico
2135	Herrera	Response spectra on stratified soil

Earthquake Engineering, Seismology, Seismic Risk Analysis, and Response Spectra

<u>Page No.</u>	<u>Main Author</u>	<u>Title</u>
<u>File 6</u>		
2122	Oak Ridge National Laboratory	An interpretive review of seismic design methods
2129	Wilson	Earthquake occurrence and effects in ocean areas
<u>File 58</u>		
2230	Khanna	Site dependent spectra for a seismic design
2234	Hagiwara	Probability of earthquake occurrence estimated from results of rock fracture experiments
<u>File 9</u>		
2154	Spanos	Statistics of structural responses to seismic waves filtered through rock and soil formations
2164	Irfanac	Dependence of the Fourier amplitude spectra of strong motion acceleration on the depth of sedimentary deposits
2164	Brown	
2166	Grivas	Seismic analysis of slopes in the northeast U.S.A.
2167	Grivas	Probabilistic seismic stability analysis - a case study
2172	Crespellani	Applications of cluster analysis to seismic microzonation
2176	Kiremidjian	Probabilistic site-dependent response spectra
2177	Navy	Nonstationary risk model with geophysical input
2177	Blume	Probabilistic procedures for peak ground motions
2178	Cornell	Seismic motion and response prediction alternatives
2180	Kubo	Simulation of three-dimensional strong ground motions along principal axes, San Fernando earthquake
2181	Kubo	Analysis of three-dimensional strong ground motions along principal axes, San Fernando earthquake
2181	Boore	Estimation of ground motion parameters
2181	Bell	Design earthquake motions based on geologic evidence
2187	Romstad	Site dependent earthquake motions
2189	McGuire	Seismic ground motion parameter relations
2190	Lin	Criteria for the generation of spectra consistent time histories
2192	Kiremidjian	Probabilistic site-dependent response spectra
2192	Anderson	Uniform risk absolute acceleration spectra
2192	Curpinar	Study of attenuation parameters for California
2197	Borchardt	Study for seismic zonation of the San Francisco Bay region: a brief summary
2207	Karaemen	Survey of the 1st February 1974 Izmir (Turkey) earthquake
2208	Osavi	Dynamics of progressive fracturing and spatial development in the source region of the Kovna earthquakes
2216	Hagiwara	Probability of earthquake occurrence estimated from results of rock fracture experiments
2227	Liu	Spectral simulation and earthquake site properties
<u>File 89</u>		
1818	Faylin	Reservoir Induced-Seismic Sequence
1820	Gutierrez	Earthquake analysis of structure-soil interaction
1820	Kubo	Ground motions along principal axes, San Fernando quake
1820	Huanven	Analysis of seismicity, North China Plain
1820	Hales	Earthquake prediction
1822	Johnson	Seismic resistance capacity-spent nuclear fuel storage racks
1827	Kagawa	Lateral pile response during earthquakes
1827	Shen	Field measurements of an earth support system
1842	Islami	Seismic aspects of Langleigh Dam
1845	Anderson	Consequence of an earthquake prediction on statistical estimates of seismic risk
1850	Peronaci	Seismic zoning of L'Aquila; statistical analysis
1851	Campbell	An empirical analysis of the source of energy release during the Oct. 15, 1979 Imperial Valley earthquake
1853	McLaughlin	Analysis of incoherent energy in near field accelerograms
1853	Ormsby	Probability that another intensity 8 event could occur in the S.E. during a 200 year period
1853	Schoof	Problems and pitfalls of using Bayesian models for seismic hazard analysis
1854	Evernden	Estimates of intensities and damage for California earthquakes
1856	Shaw	Statistical data for movements on young faults of the conterminous United States; paleo seismic implications and regional earthquake forecasting
1861	Rogers	Comparative ground response studies in Los Angeles using NTS nuclear explosions and San Fernando earthquake data
1862	Milne	Seismic zoning in Canada; some modifications to current maps
1862	Algermissen	New probabilistic hazards maps for the United States; a progress report
1862	Bucknam	Lake Quaternary faulting as a guide to regional variations in long-term rates of seismic activity
1863	Plotnikova	Estimation of the seismic forces of earthquakes for construction taking into account the frequency characteristics of the focal zone in the region
1863	Lytkher	The statistical behavior of corrected earthquake acceleration forces and the prediction of seismic stresses in complex systems
1863	Ayzenberg	Statistical computation model of seismic effects on construction
1863	Majin	On the Langleigh earthquake and the earthquake risk areas
1865	Kowalska	Energy release in selected regions of the "Lubin" copper mine in 1973 and 1974
1867	McGuire	Statistical uncertainties in seismic hazard evaluations in the United States
1868	Zhurkov	Concentrated criteria for the destruction of solid bodies
1869	Huanven	Three-dimensional finite element analysis of relationship between stress state of a rock mass and driving force
1871	Davis	Probability of earthquake occurrence in the vicinity of the Chena flood control dam near Fairbanks, Alaska
1871	Gogeliya	Applying finite element methods during seismic microzonation
1872	Napetvaridze	Preliminary data for measuring estimated capacity in seismic microzoning
1872	Thenhaus	Probabilistic estimates of maximum seismic horizontal ground motion on rock in coastal California and the adjacent outer continental shelf
1873	Bureau	Seismic analysis criteria for large dams
1876	Roushandel	A comparative seismic hazard study for Azerbaijan Province in Iran
1877	Howell	A comparison of estimates of seismic risk in the central United States
1879	USGS	Scenarios of possible earthquakes affecting major California population centers, with estimates of intensity and ground shaking
1882	Battle	Seismic hazards estimation study for Vandenberg AFB
1884	Stojic	Effects of reservoirs in karst areas on earthquakes
1887	Cluff	Estimating the probability of occurrences of surface faulting earthquakes on the Wasatch fault zone, Utah
1893	Shepherd	Seismicity and seismic intensities in Jamaica, West Indies; a problem in risk assessment
1908	Oborn	Seismotectonics and dam construction; general report
1910	Atkinson	The evaluation of seismic risk in northern Canada and applications to pipeline response
1914	Baath	A method for mapping seismic intensities applied to Sweden
1914	Baath	Intensity relations for Swedish earthquakes
1914	Huanven	Experimental studies on the origin of low resistivity-low velocity layer beneath North China Plain and finite analysis for its relationship to seismicity
1917	Goto	Statistical analysis of earthquake ground motion with the effect of frequency-content correction
1918	Perkins	Probabilistic estimates of maximum seismic horizontal ground motion on rock in the Pacific Northwest and the adjacent outer continental shelf
1920	Riznichenko	The Tashkent-California system of earthquake spectra
1920	Lomnitz	Canadian methodologies of probabilistic seismic risk estimation

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1922	Bertrand	Statistical classification of seismic measurements and dam design
1924	Crouse	Probability of earthquake ground acceleration in San Diego
1924	O'Brien	The correlation of response spectral amplitudes with seismic intensity
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1930	Anderson	Application of seismic risk procedures to problems in microzonation
1931	Farvardhan	Zonation for critical facilities based on two-level earthquakes
1958	Moore	Peak acceleration, velocity, and displacement from strong-motion records
1961	Blume	Probabilistic procedures for peak ground motions
1962	Tsai	Recent status of earthquake prediction research in Taiwan
1962	Jennings	Strong earthquake ground motion
1966	Jurkevics	Autoregressive parameters for a suite of strong-motion accelerograms
1968	Deans	Probabilistic evaluation of the design basis seismic ground motion for Chat Falls site
1969	Anderson	Consequence of an earthquake prediction on statistical estimate of the seismic risk
1970	Basham	Regional assessment of seismic risk in Eastern Canada
1970	Weichert	On Canadian methodologies of probabilistic seismic risk estimation
1972	Stiller	Physical processes in earthquake regions; possibilities of interpretation by means of laboratory experiments on rocks
1976	Mortgat	A Bayesian model for seismic hazard mapping
1979	Matsuda	The relation between subsoil condition and the collapse rate of wooden houses due to the Great Kanto earthquake of 1923 in Yokohama City
1982	Waldo	An approach to seismic zoning in southern New England
1982	Raath	Seismic risk in Fennoscandia
1983	Basili	Macro seismic aspects and seismological and statistical considerations
1983	Hasegawa	Seismotectonics of the Beaufort Sea
1987	Smith	Earthquake risk in New Zealand; statistical estimates
1996	Ohashi	Statistical analysis of strong-motion acceleration records
1998	Harding	Dynamic finite element modeling of near field ground motion from the San Fernando 1971 earthquake
2005	Berry	The sensitivity of low probability seismic risk estimation to seismicity model parameters in eastern Canada
2012	Sadigh	Design response spectra for moderate magnitude local earthquakes at rock and stiff-soil sites
2013	Aggarwal	Earthquakes, faults, and nuclear power plants in southeastern New York-northern New Jersey
2018	Savich	Main directions in investigations of remanent seismic deformations; development of methods of seismic prediction for areas of hydrotechnical structures
2018	Omote	A new approach for estimating earthquake risk
2019	Grandorc	Balanced seismic coefficients for sites with different seismicity
2019	Karnick	Seismic zoning of the Balkan region
2019	Ambraseys	Trends in engineering seismology in Europe
2019	Gulkan	A seismic risk study of Izmir
2020	Grases	Migration of destructive earthquakes in Middle America and associated risk of occurrence
2020	Ahorner	Probability distribution of earthquake accelerations for sites in western Germany
2020	Shah	Seismic risk analysis; California State Water Project
2022	Smith	Statistical estimates of the likelihood of earthquake shaking throughout New Zealand
2027	Ahorner	Probability distribution of earthquake accelerations with applications to sites in the northern Rhine area, Central Europe
2028	Day	Finite element analysis of seismic scattering problems
2030	Trifunac	Statistical analysis of the computed response of structural response recorders (SRR) for accelerograms recorded in the United States of America
2030	Kumar	Effects of site conditions on floor response spectra
2035	Stojkovic	Statistic assessment of strong earthquake intensities variation in urban areas
2035	Ohta	A macro zoning map of Japan on amplification characteristic of 1-10 sec strong ground motions
2036	Srivastava	Seismotectonic study of Northwest Kashmir
2036	Mair	An approach to establishing design surface displacements for active faults
2036	Low	Statistical seismicity of Taiwan
2036	Basu	Seismic risk analysis of Indian Peninsula
2037	Alonso	Seismic risk and seismic zoning of the Caracas Valley
2037	Shah	A seismic risk contour map for Nicaragua
2037	Whitman	Seismic design regionalization maps for the United States
2037	Faccioli	Probabilistic assessment of seismic risk on local soil sediments
2038	Yoshikawa	A probabilistic approach to estimate design earthquake for a site in terms of magnitude, epicentral distance and return period
2038	Rikitake	Classification of earthquake prediction information for practical use
2042	Diab	The dam-foundation complex and an explanation of earthquakes due to the filling of certain reservoirs
2051	Mayer-Rosa	Seismic risk maps of Switzerland; description of the probabilistic method and discussion of some input parameters
2051	Ahorner	Probability distribution of earthquake accelerations for sites in Western Germany
2051	Willmore	The UK approach to hazard assessment
2051	Slunga	Probability model for peak ground accelerations in Sweden
2052	Makropoulos	Earthquake parameters from extreme value statistics
2053	Schubert	Influence of the blasting technique and the structure of the deposit on the intensity and distribution of earthquakes caused by blasting
2053	Labbe	Micro seismic relations for the seismic risk evaluation in Chile
2053	Riddell	Statistical study of earthquake response spectra
2055	Mortgat	A Bayesian approach to seismic hazard mapping; development of stable design parameters
2055	Kiremidjian	Probabilistic hazard mapping; development of site dependent seismic load parameters
2056	Glass	Earthquake injuries related to housing in a Guatemalan village
2056	Marr	Application of linear statistical models of earthquake magnitude versus fault length in estimating maximum expectable earthquakes
2057	Kuribayashi	Relationship between earthquake damage of existing wooden houses and seismic intensities
2057	Hattori	The regional distribution of the earthquake danger in Japan
2057	Dalai	Site-dependent seismic response spectra for soft sites
2059	Solomonko	Eastern Siberia
2059	Whitman	Design
2060	Chinnery	Damaging earthquake probability studies in the eastern U. S. and their potential applications to nuclear power plant siting
2061	Blume	Civil structures and earthquake safety
2062	Brekke	A systematic approach to uncertainty and risk
2062	Starr	Social benefits vs. risk
2062	Chaudhury	The time of occurrence and the magnitude of the largest aftershock over India
2063	Bell	Statistical seismicity including geologic evidence
2063	Shahal	Earthquake hazard in New England
2064	Der Kiureghian	A line-source model for seismic risk analysis
2065	Trifunac	Preliminary empirical model for scaling Fourier amplitude spectra of strong ground acceleration in terms of earthquake magnitude, source-to-station distance and recording site conditions
2067	Ezavea	Invited contributions
2068	Solinas	Artificial earthquake records of prescribed magnitude and focal distance
2073	Seed	Site-dependent spectra for earthquake-resistant design
2074	Lou	Stochastic simulation of earthquakes
2076	Sharma	A statistical study of Koyana aftershocks for the period January 1968 - October 1973
2076	Robinson	The probable earthquake or the hundred year seismic event for the Los Angeles region

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2089	Tarr	New seismic study begins in Puerto Rico
2090	Donovan	Statistical uncertainty of design based on smoothed response spectra
2091	Esteve	Geology and probability in the assessment of seismic risk
2092	Caputo	Analysis of seismic risk
2092	Scholl	Low-rise building damage from low-amplitude ground motions
2094	Lomnitz	Global tectonics and earthquake risk
2095	De Capua	Statistical analysis of seismic environment in New York State
2095	Iyengar	Probability of failure of structures under earthquake excitations
2096	Steinbrugge	Earthquake damage and related statistics
2100	Lau	Seismicity of Hong Kong
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2106	Barnhart	Seismic probability
2107	Scholl	Statistical correlation of observed ground motion with low-rise building damage
2107	Orphal	Prediction of peak ground motion from earthquakes
2107	Singh	Statistical interpretation of earthquake duration
2108	Chou	Likelihood of strong-motion earthquakes
2108	Taylor	Time criteria, classification of fault activity and time-criteria risk
2108	Howell	Average regional seismic hazard index (ARSHI)
2108	Li	A statistical study on the determination of the standard seismic intensity
2110	Sato	Determination of the center of the distribution of collapsed houses
2111	Stapp	Analysis of completeness of the earthquake sample in the Puget Sound area and its effect on statistical estimates of earthquake hazard
2111	Shah	Forecasting the risk inherent in earthquake resistant design
2111	Shah	Damage and risk analysis for the Greater San Francisco Bay area due to earthquake loading
2111	Liu	Statistical analysis of 1971 San Fernando earthquake ground-motion data
2117	Kedar	Earthquake-risk mapping: space photographic and statistical approaches
2120	Shebalin	The statistical determination of earthquake intensities
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2121	Bardwell	Some statistical features of the relationship between Rocky Mountain Arsenal waste disposal and frequency of earthquakes
2121	Kantorovich	A statistical model of seismicity and an estimate of the basic seismic effects
2122	Ranalli	A statistical study of aftershock sequences
2124	Fox	Seismic geology of the eastern United States
2124	Bardwell	Some statistical features of the relationship between Rocky Mountain Arsenal waste disposal and frequency of earthquakes
2128	Benjamin	Probabilistic models for seismic force design
2131	Hamilton	Seismic regionalization of eastern Canada
2134	Blume	Earthquake ground motion and engineering procedures for important installations near active faults
2134	Lacer	A simulation of earthquake amplification spectra for southern California sites
2134	Herrera	Earthquake spectrum prediction for the Valley of Mexico
2219	Spanos	Statistics of structural responses to seismic waves filtered through rock and soil formations

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1842	Donath	Probabilistic treatment of faulting in geologic media
1846	Melosh	A simple and efficient method for introducing faults into finite element computations
1856	Shaw	Statistical data for movements on young faults of the conterminous United States; paleoseismic implications and regional earthquake forecasting
1862	Bucknam	Lake Quaternary faulting as a guide to regional variations in long-term rates of seismic activity
1887	Cluff	Estimating the probability of occurrences of surface faulting earthquakes on the Wasatch fault zone, Utah
1893	Cluff	Estimating the probability of occurrence of surface faulting earthquakes on the Wasatch fault zone, Utah
1926	Bosi	Deformations in a cover of clays due to movements along faults in the bedrock
1976	Jamison	Elastic-plastic finite element models of forced folds and comparison with specific natural structures
1983	McKague	Recognition of faults in Tertiary-Quaternary alluvium in northern Yucca Flat, Nevada
2017	Brooke	Geomathematical investigation of fault populations at selected locations
2018	Gupta	Stochastic time-series analysis of volcanic events in central Luzon, Philippines
2039	Goodman	The influence of system stiffness and test made on phenomena accompanying stick-slip on fault surfaces
2130	Smith	Investigations into the probability of surface faulting
2238	Donath	Probabilistic treatment of faulting in geologic media

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2113	Snow, Ice and Permafrost	Investigation of description, classification, and strength properties of frozen soils, Vol. 11
2114	Snow, Ice and Permafrost	Investigation of description, classification, and strength properties of frozen soils, Vol. 1
2115	Ushkalov	Ultimate deformations of building foundations on thawing ground
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1831	Saetersdal	Heaving conditions by freezing of soils
1831	Pietrzyk	New formulation of the criteria of frost heave
1832	Jones	Development and applications of frost susceptibility testing
1832	Frvik	Thermal design of artificial soil freezing systems
1832	Jessberger	Optimization of freeze pipe arrangement and necessary refrigeration plant capacity
1925	Canard	Winters statistics; characterization and principal types of winters in France
1928	Mirenburg	Calculation for piles using particle-linear functions
1949	Klein	The application of finite element to creep problems in ground freezing
1981	Klein	Creep stress analysis of frozen soils under multiaxial states of stress
1981	Zaretsky	Ice behavior under load
1981	Johnson	Effect of freeze-thaw cycles on resilient properties of fine-grained soils
1982	Karlov	Frost heave of unsaturated loamy soil under field conditions
2005	Del Giudice	Finite element simulation of freezing processes in soils
2081	Pavlov	Variability of thermal on the surface layer of soils

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2229	Smith	Probability theory in geotechnics-an introduction
2233	Sviridov	Investigation of rocks by mathematical statistical methods
2233	Komarov	Multivariate statistical analysis in engineering geology
2234	Lumb	Application of statistics in soil mechanics
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1870	Tang	Probabilistic evaluation of loads
1897	Romanova	Research in mathematical geology
1956	Werner	Techniques in user oriented finite element programs for geomechanical design practice
1963	Smith	Numerical and physical modeling
1966	Chandrakant	Introduction, numerical methods, and spectral topics
1966	Desai	Numerical methods in geotechnical engineering
1970	Harr	Mechanics of particulate media; a probabilistic approach
1977	Dvili	Swiss use of the computer in soil mechanics
1978	Shaw	The role of finite element techniques in applied soil mechanics and foundation engineering
2007	Bannerjee	Boundary element methods in geomechanics
2007	Gallagher	Accuracy in data input and in stress calculations
2010	Gudehus	Some interactions of finite element methods and geomechanics; a survey
2023	Walpole	Probability and statistics for engineers and scientists
2029	Rosemann	Mathematical problems in geology
2098	Lee	Soil mechanics; New Horizons
2105	Hill	Earth hazards
2109	Jimenez	Mathematical methods in applied geology
2115	Muspratt	Numerical statistics in engineering geology
2115	Filleek	Possible applications of the finite element method to rock mechanics
2117	Nagao	Two-variate exponential distribution and its numerical table for engineering application
2121	Nagao	Study on two-variate gamma distribution and its engineering application, fundamental theory of two-variate exponential distribution
2122	Thiel	Use of MDC method - Polish variety of PERT method-in engineering-geologic programming
2127	Mavis	Graphical statistics and common-sense applications
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2209	Yamshchikov	Creation of a methodology for making measurements in solid rock
2212	Bernabini	Methods for determining the average dynamic elastic properties of a fractured rock mass and the variations of these properties near excavations
2214	Friedman	Investigations of the relations among residual strain, fabric, fracture and ultrasonic attenuation and velocity in rocks
2217	Thill	Statistical comparison of the pulse and resonance methods for determining elastic moduli
2218	Simane	Seismoacoustic investigations for forecasting of rock bursts
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2232	Thill	Statistical comparison of the pulse and resonance methods for determining elastic moduli
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1833	Sondergeld	Acoustic emission study of microfracturing during the cyclic loading of westerly granite
1867	Broz	Automatic processing of the time sequence of seismo acoustic impulses
1872	Volynets	Statistical characteristics of elastic wave velocities in crystalline rocks under high pressure
1879	Lastovickova	Electric conductivity of young basaltic rocks of central and South-East Slovakia
1880	Lachapelle	Empirical determination of the gravity anomaly covariance function in mountainous areas
1885	Ruths	The reference-correction method for improving the accuracy of seismically locating trapped coal miners
1886	Heyne	Dependence of rock density on chemical oxide contents and ultrasonic velocities
1892	Glushko	Seismo-acoustical anomalies in coal seams of the Donets Basin
1909	Blom	Spectral reflectance and discrimination of plutonic rocks in the 0.45- to the 2.45-mum region
1914	Huanyen	Experimental studies on the origin of low resistivity-low velocity layer beneath North China plain and finite element analysis for its relationship to seismicity
1924	Olhoeft	Physical property statistics or how to hide an anomaly
1927	Olaszowski	A study of rock properties using a petroscope
1970	Sjogren	Seismic classification of rock mass qualities
1980	Samujllo	Relation between size reduction and velocity of travel of a longitudinal ultrasonic wave through samples of certain rocks
2028	Day	Finite element analysis of seismic scattering problems
2041	Thill	Statistical comparison of the pulse and resonance methods for determining elastic moduli
2081	Cole	Velocity/porosity relationships in limestones from the Portland group of southern England
2091	Khmelevskoy	The statistical data for the interpretation of complex geological and geophysical investigations
2195	Popov	Geophysical investigations of rock-reservoir properties in very deep wells
2119	Fil'shtinskiy	Application of correlation and regression analysis of the study of the relationship among elastic wave velocity, density, and carbonate properties of rocks
2127	Melickian	Geophysical activity in 1967 applied to engineering, construction, and ground water projects
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1885	Plona	Characterization of the average microscopic dimension in granular media using ultrasonic pulses; theory and experiments
1887	Robinson	Simple statistics for elastic properties from seismic results
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1920	Drake	Love and Rayleigh waves in an irregular soil layer
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2014	Milligan	Grouping of marine sediments using a multivariate analysis of seismic profiles
2060	Houtz	Sound-velocity characteristics of sediment from the eastern South American margin
2096	Anderson	Statistical correlation of physical properties and sound velocity in sediments
2120	Schon	Determination of geotechnical properties by geophysical measurements
2137	Jones	Landslides along the Columbia River Valley, north-eastern Washington
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1895	Kaderabek	Comparison of field density test results
1932	Selvadurai	A theoretical assessment of the screw plate test
1961	Tang	Probabilistic evaluation of penetration resistances
1971	Crespellani	Numerical-statistical analysis of large-scale penetrometric tests
1972	Valisova	A mathematical and statistical evaluation of the methods for measuring the rheological and colloidal properties of a syntan-affected bentonite suspension
1993	Donald	The vane test; a critical appraisal
2031	Werner	Use of analytical and statistical techniques to assess in-situ soil test procedures
2066	Barbarick	Percolation tests for septic tank suitability in southern Arizona soils
2074	Nottingham	Use of quasi-static friction cone penetrometer data to predict load capacity of displacement piles
2075	Ahmad	Evaluation of in-situ testing methods in soils
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1823	Kalinin	Estimation of the stress-deformation state of slopes in stratified sedimentary rocks by the finite element method
1323	Menol	Building-up a landslide area situated on the boundary of the Carpathian Fore-deep
1825	Spurek	Register of landslide data in Czechoslovakia
1825	Cheong	Probability of failure and safety factors in stability of natural slopes
1843	Radbruch	Gravitational spreading of steep-sided ridges ("sackung") in Western United States
1851	Simons	Landslide potential prediction for watersheds
1858	Crozier	Distribution of landslides in the Wairarapa hill country
1874	Yoshimatsu	Discrimination of landslide slopes and estimation of hazard based on morphological analysis
1884	Neuland	Discriminant analysis for identifying the slip factors for landslides at different altitudes in the Colombian Andes
1888	Ward	Mathematical modeling approach for delineating landslide hazards in watersheds
1913	Chen	Plasticity approach to landslide problems
1931	Harp	Landslides from the February 4, 1976 Guatemala earthquake; implications for seismic hazard reduction in the Guatemala City area
1960	Reger	Discriminant analysis as a possible tool in landslide investigations
1972	Takase	A statistical study on the relations between landslides and topography, geology, and rainfall factors in the Kurobe River basin
2006	Wieczorek	Static and seismic landslide susceptibility
2045	Carrara	Computer-based data bank and statistical analysis of slope instability phenomena
2050	Woodfork	Univariate and multivariate statistical analysis of West Virginia landslide data
2050	Keger	Mass movement on spoil outcrops of contour surface-mines, north-central West Virginia
2056	Kuchan	Calculation of recurrence and intensity of landslide processes
2060	Salway	Statistical estimation and prediction of avalanche activity from meteorological data for the Rogers Pass area of British Columbia
2066	Spurek	Retropection and prognosis of landslide calamities
2067	Carrara	Landslide inventory in northern Calabria, southern Italy
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2086	Kojan	Regional evaluation of landslide hazard; a semi-quantitative method
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1942	Maksimovic	Limit equilibrium for nonlinear failure envelop and arbitrary slip surface
1942	Hasegawa	A method slope stability analysis and design of slope by linear predictor
1980	Steffen	Some aspects of three-dimensional and two-dimensional rock slope stability analyses with two case histories
2015	Major	A general probabilistic analysis for three-dimensional wedge failures
2015	Marek	Probabilistic analysis of the plane shear failure mode
2016	Glass	Determining seismic risk for economic optimum slope design
2017	Herget	Analysis of discontinuity orientation for a probabilistic slope stability design
2024	Marion	Pit slope manual supplement 4-1; computer manual for seepage analysis
2025	Young	Probability analysis of rock slopes and its application to a pit slope design
2027	Piteau	Slope stability analysis and design based on probability techniques at Cassiar Mine
2041	Wang	Computer program for pit slope stability analysis by the finite element stress analysis and limiting equilibrium method
2071	St. John	Three-dimensional analysis of jointed rock slopes
2083	McMahon	Probability of failure and expected volume of failure in high rock slopes
2087	Makaldi	A statistical method for slope stability studies
2087	Largatelli	A geomechanical study of a rock slide at kilometer 193 between Tonale and Mendola on S.S.42, Trentino
2113	Yu	Analysis of rock slopes using the finite element method
2114	McMahon	A statistical method for the design of rock slopes
2130	Hammel	A mathematical model for pit slope stability, in operations research and computer applications in the mineral industries
2132	Hartman	A three-dimensional optimum pit program and a basis for a mining engineering system
2138	Piteau	Slope stability analysis and design based on probability techniques at Cassiar Mine
2139	Glynn	Probability of kinematic instability in rock slopes; a numerical approach
2139	Major	A general probabilistic analysis for three-dimensional wedge failures
2140	Marek	Probabilistic analysis of the plane shear failure mode
2240	Young	Probability analysis of rock slopes and its application to a pit slope design
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Rock Strength, Stress and Deformation

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2129	VanDyke	Fracture of rock due to high pressure, short duration loadings
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2150	Dight	Prediction of shear behavior of joints using profiles
2154	Jogg	Statistical prediction formula for compressive strength of a rock
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2179	Wijk	Relation between the uniaxial tensile strength and the sample size for Bohus Granite
2179	Cook	Variability and anisotropy of mechanical properties of the Pittsburgh Coal Seam
2186	Holcomb	Quantitative model of dilatancy in dry rock and its application to Westerly Granite
2186	Constantino	Statistical variation in stress-volumetric strain behavior of Westerly Granite
2197	Atkinson	Statistical variation of the compliance of coal
2199	Brown	Analysis of size effect behavior in brittle rock
2206	Mokhnachev	Tension fatigue of rocks
2206	Kaul	Effect of the volume of the specimen on the flexural strength of Makrana Marble
2207	Ramaswamy	Factor of safety in rock mechanics
2209	Chappell	Component characteristics of jointed rock masses
2210	Medvedev	Statistical interpretation of the results of strength tests on rocks
2210	Stravogin	Statistical principles of the strength and deformation of rock in complex states of stress
2211	Linde	How to anticipate deformation of rock bodies
2215	Stankus	How rock strength in the Kuzbass depends on geological and physical characteristics
2222	Lundborg	Statistical theory of the polyaxial compressive strength of materials
2223	Nishimatsu	Fatigue failure and fractography of rock under pulsating tensile stress
2223	Kostak	Pillar strength prediction from representative samples of hard rock
2224	Chan	Proposed method to obtain actual strength parameters of mine rocks and rock masses
2225	Yanaguchi	Number of test pieces required to determine the strength of rock
2225	Nishimatsu	Statistical distribution of fatigue life and the fracture mechanism of the rock
2226	Brady	Statistical theory of brittle fracture for rock materials
2227	Bergmann	Influence of random Poisson's ratio on displacements in elastic half-plane
2227	Sinha	Compressive strength of some Indian rocks
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2231	Constantino	Statistical variation in stress-volumetric strain behavior of granite
2232	Bishop	The values of Poisson's ratio in saturated soils and rocks stressed under undrained conditions
2232	Parrish	A non-linear least squares fitting approach for determining activation energies for high temperature creep
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1837	Bondurant	Physical, mechanical and strength properties of oil shale
1842	Dikovskiy	Analyzing errors in laboratory studies of rock strengths
1846	Kuzilitskaya	Probabilistic approach to deformation and strength properties of shale mass
1881	Nishimatsu	Simulation model of failure process of rock and its application to delayed failure
1882	Bunger	A numerical approach to predicting stresses and displacements around a three-dimensional pressurized fracture
1882	Nova	The failure of transversely isotropic rocks in triaxial compression
1887	Anderson	A finite element method for studying the transient non-linear creep of geological structures
1887	Ingraffea	Finite element models for rock fracture mechanics
1894	Stacey	A simple device for the direct shear-strength testing of intact rock
1898	Ciancia	Comparison of finite element predictions of horizontal elastic rock movements to field measurements in an excavation in New York City
1899	Yutis	Numerical analysis of rock structures considering material nonlinearities
1902	Wang	A finite element simulation on the failure of brittle rocks
1903	Cheung	On the numerical solution of certain initial value problems
1903	Fan	On the application of an interpolation matrix for computation of stresses in finite elements
1906	Koch	Flow law of "wet" quartzite in the alpha-quartz field
1906	Manson	Constitutive model for the low temperature creep of polycrystalline salt
1911	Stagg	On the application of a numerical visco-plastic model to rock mechanics problems
1915	Sugawara	A study on core discing of rock
1915	Stearfield	Discontinuous models of problems in geomechanics
1940	Tsai	Variational approach for the elimination of temporary boundary effect from finite element method
1948	Barisau	A finite element approach to strain softening and size effects in rock mechanics
1948	Hsu-fun	Nonlinear analysis of the mechanical properties of joint and weak intercalation in rock
1948	Dubois	Efficient three dimensional finite element analysis of stratified rocks
1949	Cramer	Finite element analysis of stress distribution, induced fracture and post-failure behavior along a shear zone in rock
1956	Szavits	A relaxation stress-deformation finite element program
1957	Cleary	On tractable constitutive relations and numerical procedures for structural analysis in masses of geological materials
1960	Pande	On joint interface elements and associated problems of numerical ill-conditioning
1965	Goodman	Finite element analysis for discontinuous rocks
1971	Toussant	The applications of non-linear finite elements method in engineering geology
1975	Burns	Creep, relaxation, and dynamic changes of stress in rocks
1976	Constantino	Statistical variation in stress-volumetric strain behavior of Westerly Granite
1980	Nishimatsu	Computer modeling of rock fracture in uniaxial compression
1985	Gard	Evaluation of the anisotropic behavior of Brazilian test discs by the finite element method
1994	Murita	Stress analysis for a non-linear rock structure
2004	Hollub	A quantitative model of dilatancy on dry rock and its application to Westerly Granite
2008	Goodman	Analysis in jointed rocks

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2016	Chong	Creep and relaxation of oil shale
2016	Glynn	A probabilistic model for shearing resistance of jointed rock
2040	Horino	A method for estimating strength of rock containing planes of weakness
2045	Kosloff	Treatment of hourglass patterns in low order finite element codes
2048	Burman	Development of a numerical model for discontinua
2049	Booker	Methods for the numerical solution of the equations of visco elasticity
2054	Atkinson	Statistical variation of the compliance of coal
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2088	Landberg	A statistical theory of the potential strength of materials
2091	Chappel	Friction characteristic of graphite coated bedding joints in shale
2097	Bacar	Influence of the interstitial pressure under the conditions of resistance
2106	Glushko	Discussion of A. Kostak and H. A. Kienast's paper "strength distribution in hard rock"
2106	Altiev	Relationship between shear strength and vertical pressure in loessal rocks of the Tashkent region
2109	Canizo	Numerical analysis of an elasto-plastic rock medium
2124	Brady	A statistical theory for brittle fracture for rock materials; Part II, brittle failure under homogeneous triaxial states of stress
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2125	Kolomoysiv	The use of probability theory for the solution of some problems in engineering geology
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2130	Brady	A statistical theory of brittle fracture for rock materials; Part I, brittle failure under homogeneous triaxial states of stress
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2131	Hodds	Engineering geology of the Rez project, southwestern Iran
2132	Schubelager	Some implications of statistical transport theory in rock mechanics
2135	Schubelager	Some implications of statistical transport theory in rock mechanics
2145	Wane	The probabilistic nature of failure in the geologic universe
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1854	Waters	Utilization in application of a statistical approach to filters and filter fabrics
1871	Smith	Spatial variability of flow parameters in a stratified sand
1886	Gray	Finite element technique for two-dimensional consolidation
1887	Stoomburg	Seepage from partially saturated mine waste disposal systems
1895	Dubinchuk	Isotope studies in hydrogeology and engineering geology
1904	Correia	The variable permeability method to finite element analysis of seepage in porous media
1909	Dehlin	Groundwater and drawdown in large earth excavation
1909	Laflour	Groundwater regime associated with slope stability in Champlain clay deposits
1929	Vandiv	Seepage erosion of geotechnical structures subjected to confined flows: a probabilistic design approach
1929	Marilla	Seepage characteristics through an abandoned tailings pile
1930	Martins	Free surface flow in porous media by finite element methods
1931	Barf	Suitability of a seepage control method for a dam
1952	Karfa	Numerical modeling of seepage in earth and rockfill dams
1953	Cheng	Timespace finite elements for unsaturated flow through porous media
1953	Akai	Coupled stress flow analysis in saturated-unsaturated medium by finite element method
1953	Akai	Finite element analysis of three-dimensional flows in saturated-unsaturated soils
1967	Garza	Pore distribution and permeability of silty clays
1968	Dalen	Immiscible flow by finite elements
1993	Barilovskiy	Mathematical methods and the reliability of hydrogeological and engineering geology forecasting
1999	Farkas	Infiltration and laboratory permeability studies of spoils from selected coal strip mines, Lower River Basin, western and Montana
2008	Leuts	Interaction between water flow phenomena and the mechanical behavior of soil or rock masses
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2199	Schopper	A statistical network model and theory of porous media
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1842	Koppula	Statistical estimation of compression index
1848	Tomnton	Finite element consolidation analyses of tunnel behavior in clay
1875	Huang	A probabilistic consolidation analysis for embankment foundations
1875	Orszanski	Stresses and displacements in a layered subsoil finite element analysis: Part 2, finite element assembly for a layered subsoil
1884	Rzeznizak	Application of isotope techniques to the assessment of the consolidation effect on the structure of peats
1901	Yuan	Primary and secondary plane strain consolidation problems by the finite element method
1903	Sandhu	Analysis of consolidation of viscoelastic soils
1915	Linno	Settlement under circular loading for construction of tank foundation
1919	Sivandran	Probabilistic analysis of stability and settlement of structures on soft Bangkok Clay
1936	Sivandran	Application of probability theory to the finite element method in predicting settlements in soft Bangkok Clay
1954	Sparks	Numerical methods for the settlement of Venice and layered soil deposits
1954	Small	Analysis of the consolidation of layered soils using the method of lines
1954	Sagaseta	Numerical model for undrained and consolidation deformations of soft clays
1955	Richter	Nonlinear consolidation models for finite element computations
1955	Desai	A one-dimensional finite element procedure for nonlinear consolidation
1955	Aubry	Special algorithms for elastoplastic consolidation with finite elements
1961	Christian	Two- and three-dimensional consolidation
1964	Schiffman	One-dimensional consolidation
1979	Akai	Numerical analysis of stress path under multidimensional consolidation
1979	El-Moursi	Uncertainty analysis of settlement rate
1986	Ramaswamy	Settlement of footings on compacted clays
1990	Sanglerat	Surcharge fill settlements on soft clay at the location of two air cooling towers
1992	Schultze	Statistical evaluation of settlement observations
1994	Johnson	A finite element method for consolidation of clay
2029	Kogure	Statistical forecasting of compressibility of peaty ground
2048	Martin	A three dimensional deformation analysis of the Storaas Dam
2050	Desai	Consolidation analysis of layered anisotropic foundations
2071	Cornell	First-order uncertainty analysis of soils deformation and stability
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1886	Perisic	Contribution to the rationalization of drilling pattern for research of low grade coal by geostatistical method
1889	Crespellani	Use of factor analysis in geotechnical exploration of the subsurface
1918	Davis	Better exploration decisions with probability analysis
1975	Ratz	Statistical theory of sampling nonuniform soils
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Soil Slopes, Embankments, Dams and Excavations

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1984	Chang	Analysis of consolidation of earth and rockfill dams; Appendices C-E; user's manual for computer program CON2D for the finite element analysis of consolidation in zoned dams
1990	Chirapontu	Cracking and progressive failure of embankments on soft clay foundations
1990	Brenner	Geotechnical aspects of soft clays
1992	Dolezalova	Stability of a deep excavation bottom
1994	Antoni	INPEP's views on earthquake-resistant design of earth dams
2007	Biernatowski	Stability of slopes in variational and probabilistic solutions
2010	Wroth	The predicted performance of soft clay under a trial embankment loading based on the Cam-clay model
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2032	Okamoto	Study of effects on a berm on the stability on rockfill dams during earthquakes
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2041	Wang	Computer program for pit slope stability analysis by the finite element stress analysis and limiting equilibrium method
2043	Rodriguez	The development and application of a finite element program for the solution of geotechnical problems
2044	Wang	Slope stability analysis by the finite element stress analysis and limit equilibrium method
2046	Martin	A three-dimensional deformation analysis of the Stovess Dam
2047	Tang	Probability-based short term design of soil slopes
2047	Resendiz	The short-term stability of open excavations in Mexico City clay
2048	Ossimi	Finite element analysis of time dependent deformations and pore pressures in excavations and embankments
2050	Keger	Mass movement on spoil outcrops of contour surface-mines, North-central West Virginia
2052	Byrne	Effective stress finite element slope analysis
2057	Kienzel	Investigation and stability analysis of earth slopes
2071	Cornell	First-order uncertainty analysis of slope deformation and stability
2077	De-Silva	Slope stability problems induced by human modification of the soil covered hill slopes of Oahu, Hawaii
2081	Ruise	Engineering properties and slope form in granular soils
2083	Lumb	Probabilistic aspects of slope stability
2084	Perman	Predicted deformation of the upstream membrane of a rockfill dam
2085	Constantinides	Calculation of deformation on earthfill dams
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2087	Magee	A statistical method for slope stability studies
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2098	Lee	Stability and earth pressures
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1917	Kawasaki	Seismic reponse analysis of composite ground treated by deep chemical mixing stabilization method; Pa : 1, Analytical Method
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1837	Prevost	Finite element solution of boundary value problems in soil mechanics
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1878	Molenkamp	A continuum model on the basis of the double sliding, dilative, free rotating model
1891	Toh	Finite element analyses of isotropic and anisotropic cohesive soils with a view to correctly predicting impending collapse
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1912	Muroto	An experimental program to define the yield function for sand
1912	Cavounidis	Parametric elastoplastic analysis of clay fills
1913	Okasaki	A stress-strain relationship of normally consolidated cohesive soil under general stress condition
1920	Karadeniz	Modeling and finite element analysis of soil behavior
1923	Wroth	The predicted performance of soft clay under a trial embankment loading based on the Cam-clay model
1923	Sugano	Moduli of elasticity of soils and their application to deformation analysis of soil structures
1925	Richards	A method of analysis of the effects of volume change in unsaturated expansive clays on engineering structures
1939	Bugrov	Numerical methods in calculations of stressed-strained states and consolidation of earth structures and foundations
1949	Okra	Constitutive equations considering anisotropy and stress reorientation in clay
1950	Chambon	Incremental nonlinear stress-strain relationship for soil and integration by finite element method
1950	Prevost	Mathematical modeling of soil stress-strain-strength behavior
1950	Martins	A survey of the methods to calculate safety against collapse in soil and rock masses
1951	Gudehus	A constitutive law of the rate type for soils
1951	Cundall	The development of constitutive laws for soil using the distinct element method
1951	Aubry	Numerical algorithm for an elastoplastic constitutive equation with two yield surfaces
1956	Ray	Three-dimensional continuum-finite element formulation for dynamic impedance evaluation of arbitrarily shaped foundations
1957	Phan	Three-dimensional geometric and material nonlinearities analysis of some problems in geomechanics
1959	Al-Shawaf	Variable modulus model for inelastic finite element analysis
1960	Ginda	Elastic-plastic analysis of geotechnical problems by mathematical programming
1966	Zienkiewicz	Viscoplasticity; a generalized model for description of soil behavior
1970	Monnet	Determination of a law for the shearing behavior of non-cohesive soils; application to the calculation of triaxial tests
1972	Vallero	A mathematical and statistical evaluation of the methods for measuring the rheological and colloidal properties of a bentonite suspension

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1973	Ballester	Anisotropic elastoplastic undrained analysis of soft clays
1973	Scheffler	Determination of stress-strain behavior in unconsolidated rocks as a prerequisite for the application of the finite element method
1977	Wroth	Finite element computations using an elastoplastic soil model for geotechnical problems of soft clay
1979	Simpson	A computer model for the behavior of London clay
1985	Lade	Prediction of undrained behavior of sand
1987	Vallabhan	Finite element analysis of the behavior of dilatant soils
1987	Richards	Application of an experimentally based nonlinear constitutive model of soils in laboratory and field tests
1987	Helenelund	Methods for reducing undrained shear strength of soft clay
1991	Kasin	A numerical solution for the stresses and deformations in a pseudo-plastic soil system
1991	Boulon	Incremental rheological law for soils and applications by the finite element method
1992	Williams	The in situ shear behavior of fissured soils
1998	Nelson	Constitutive models for use in numerical computations
2000	Bondarenko	Statistic modeling of the stages of creep processes
2009	Verruljt	Generation and dissipation of pore water pressures
2010	Wroth	The predicted performance of soft clay under a trial embankment loading based on the Cam-clay model
2010	Zienkiewicz	Some useful forms of isotropic yield surfaces for soil and rock mechanics
2010	Zienkiewicz	A unified approach to soil mechanics problems including plasticity and visco-plasticity
2011	Haddad	A multivariable-statistical approach to the evaluation of the undrained behavior of clays
2011	Yanada	Large strain analysis of some geomechanics problems by the finite element method
2021	Naumovski	Earthquake response of continuous media using dynamic relaxation
2030	Suklje	Stresses and strains in non-linear viscous soils
2044	Hsu	Analysis of soil deformation by elastic-plastic work-hardening model
2045	Banerjee	Associated and non-associated constitutive relations for undrained behavior of isotropic soft clays
2047	Richards	Theoretical transient behavior of saturated and unsaturated soils under load and changing moisture conditions
2049	Hooker	Methods for the numerical solution of the equations of viscoelasticity
2050	Carter	Finite deformation of an elasto-plastic soil
2053	Williams	The behavior of clays containing pre-existing discontinuities
2060	Vallappan	Application of finite element method to soil deformation
2069	Nelson	A probabilistic approach to the correction of soil strength
2069	Ladd	Statistical analysis of undrained strength of soft Bangkok clay
2088	Lundborg	A statistical theory of the polyaxial strength of materials
2094	Premond	Limit analysis by finite element methods
2094	Smith	Numerical analysis of plasticity in soils
2105	Wenzies	Stress analysis and slope stability in strain-softening materials
2111	Lo	Stress analysis and slope stability in strain-softening materials
2114	Lumb	Estimating the strength of jointed soils
2119	Wilkins	A theory for the shear strength of rockfill
2124	Lumb	Safety factors and the probability distribution of soil strength
2125	Alpan	Effective and true strength in normally-consolidated clays; some statistical considerations
2128	Marsal	Large scale testing of rockfill materials
2131	Hopper	Some numerical results concerning the shear strength of London clay
2136	Sallberg	Shear strength
2137	Holmes	The prediction of strength in the sediments of St. Andrew Bay, Florida

Soil-Structure Interaction: Static and Dynamic Loading

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2155	Vaidias	Soil-structure interaction and soils heterogeneity
2187	Fardis	Seismic soil-containment interaction: pipe safety
2188	Maul	Determination of the bulk density of cohesionless soils in inclined ground
2189	Romo	Finite element random vibration method for soil-structure interaction analysis
2205	Hadjran	Impact of soil-structure interaction on the probabilistic frequency variation of concrete structures
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1817	Lightner	Finite element procedure
1818	Burris	Interaction cutoff between soil and foundation
1820	Guifferez	Earthquake analysis of soil-structure interaction
1821	Basu	Axisymmetric soil structure reaction by substructure approach
1824	Bolognesi	Application of finite element programs to soil, foundation, and superstructure interaction
1826	Medina	Modelling of soil-structure interaction by finite and infinite elements
1826	Khalvati	Dynamic soil structure interaction effective stress analysis
1847	Medina	Modeling of soil-structure interaction by finite and infinite elements
1848	Desai	Behavior of interfaces between structural and geologic media
1864	Sirivardane	Nonlinear soil-structure interaction analysis of one-, two-, and three-dimensional problems using finite element method
1878	Gupta	Hybrid modelling of soil-structure interaction
1879	Romo	PLUSI; a computer program for probabilistic finite element analysis of seismic soil-structure interaction
1888	Kagawa	Soil-pile-structure interaction of offshore structures during an earthquake
1890	Nuti	Dynamic soil-structure interaction in a pile of a bridge on pile foundations
1893	Kunar	A model with non-reflecting boundaries for use in explicit soil-structure interaction analyses
1901	Roesset	Nonlinear effects in dynamic soil structure interaction
1933	Barla	Finite element analysis of soil-pipeline interaction
1937	Popovic	Numerical analysis of soil-structure interaction for a special case of heterogeneity
1941	Arochiasamy	Comparison of finite element and lumped parameter modeling for seismic response of reactor building foundation systems
1961	Dezfulian	Finite element analysis of seismic soil-structure interaction effects for nuclear power plants
1978	Lysmer	Finite element computer programs for seismic soil-structure interaction-analysis
1986	Rove	Application of the initial stress method to soil-structure interaction
1996	Werkle	Determination of spring constants in SSI by a finite element method
1996	Holzloehner	Dynamic soil-structure interaction
1997	Altes	Influence of embedment of a reactor building on the seismic behavior
1997	Kausel	Deterministic and probabilistic soil-structure interaction analysis by finite elements; workshop discussion on J. Lysmer's main lecture
1997	Born	Numerical analysis of dynamic rock-structure interaction
1999	Pandya	Seismic soil-structure interaction by finite elements case studies
2009	Smith	Some time-dependent soil-structure interaction problems
2009	Desai	Soil-structure interaction and simulation problems
2034	Ukaji	Elastic-plastic dynamic analysis of soil-foundation-structure interaction
2035	Kamil	Soil-pile-structure-field interaction under seismic loads
2035	Wight	Soil-structure interaction in nuclear power plants; a comparison of methods
2035	Gutierrez	Evaluation of methods for earthquake analysis of structure-soil interaction
2047	Gutierrez	A substructure method for earthquake analysis of structures including soil structure interaction
2048	Fraser	A rational analysis of shallow foundations considering soil-structure interaction
2050	Hall	Soil-structure interaction for nuclear power plants
2117	Duncan	Finite element analyses of Port Allen Lock

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2094	van Zyl	Storage, retrieval and statistical analysis of Indiana shale data
2108	Bureau of Reclamation	Pa Mong Stage 1 feasibility report
2116	Hoag	Estimation of the original shear strength of deep sea sediments from engineering index properties
2138	Marsh	Studies of the Keuper marl physical properties
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2159	Kiasi	On the optimum design of rock mechanics parametric studies with numerical models
2160	Bondurant	Statistical analysis and modeling of the physical, mechanical, and strength properties of oil shale
2179	Cook	Variability and anisotropy of mechanical properties of the Pittsburgh Coal Seam
2194	Smirnov	Representativeness of physical and mechanical characteristics of rocks surrounding coal seams, and methods of estimating them
2207	Javoraki	Correlation analysis in petrophysics
2209	Yamashchikov	Creation of a methodology for making measurements in solid rock
2214	Friedman	Investigations of the relations among residual strain, fabric, fracture and ultrasonic attenuation and velocity in rocks
2214	Selaviv	Relationships between some physical properties of rock determined by laboratory tests
2215	Stankus	How rock strength in the Kuzbass depends on geological and physical characteristics
2219	Haralick	Computer classification of reservoir sandstones
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2230	Hayne	Mathematical-statistical connections between rock - mechanical and rock physical parameters
2234	Kunetsov	Attaining statistical reliability in models of random properties on a continuous media
2234	Mirzadzhazad	Guide to statistical analysis of rock disintegration data
2234	Barton	Simplified procedures for the vector summation and statistical analysis of spherically distributed point clusters
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1816	Enache	Geological parameters of mines
1819	Koithara	Statistical analysis of density and porosity of subsurface rock samples from Caoveri Basin
1844	Orlov	A means of determining the degree of water saturation and clay content of rocks
1846	Bondarik	Accumulation and development of engineering geological work
1852	Vovidijs	The finite element method applied to large elastic-plastic deformations of solids
1852	Mashkour	Strength-index tests of rocks from Iraq
1855	Ihara	A study of roadway closure
1855	Yoshinaka	Physical and mechanical properties of soft rocks and its bearing capacity
1856	Store	Multiaxial testing to determine material behavior for design of energy related structures
1858	Marechal	The practice of mining geostatistics in 1980
1860	Panek	Estimating nine pillar strength from compression tests
1860	Wittke	Interpretation of the results of a rock mechanical test program for a powerhouse cavern by means of numerical analyses
1866	Hayne	Mathematical-statistical relations between rock mechanics and petrophysical parameters
1871	Koithara	Statistical analysis of density and porosity of subsurface rock samples from Caoveri Basin
1875	Pantartzis	Engineering geology problems with the planned development of the Nestos River in Northern Greece
1877	Grafakis	Efficiency of helium measurement in solving hydrogeological and engineering-geological problems
1882	Olhoeff	Physical property statistics and geologic noise
1883	Ida	Determination of a friction angle for an alkaline igneous rock
1886	Von Fantiusch	Recent movement in the northern Upper Rhine Graben: integration of geodetic, geologic and soil mechanics data
1887	Hvers	Mesoscale relationships of talus and insolation, San Juan Mountains, Colorado
1889	Korostovshevskii	Evaluation of the coefficient of porosity in a multi-layered producing section at the exploratory stage
1892	Averyan	Petrophysics of sedimentary rocks under conditions of great depth
1892	West	Grain size analysis and petrographic examination of a gravel deposit relative to engineering quality, W. Lafayette, Indiana
1895	Siska	Study of the stability of the underlying bed in the Sokolov lignite district (Czechoslovakia) taking the hot springs into account
1905	Agayev	The classification of rocks using physico-mechanical properties
1906	Warren	Rock physics characterization of Conway granite from a DOE borehole, Conway, N.H.
1908	Barroca	Geomechanical characteristics of a granite body at a damsite
1922	Fesker	General geotechnical considerations and finite element analysis in the planning of dam foundations
1922	Denis	Rock identification by means of continuity index
1928	Glushko	Engineering-geological features of iron deposits
1928	Masant	Variation of density with rock type, depth, and formation in the Western Canada Basin from density logs
1938	Helwick	Prediction of the geotechnical properties of late Quaternary Mississippi Delta deposits
1959	Tierman	Characterization and similarity testing of the mechanical properties of rocks
1974	Groth	FEM-analysis compared to model studies
1980	Lackey	An analysis of rock properties and geological discontinuities on pillars roadway stability
1985	Olhoeff	Tables of room temperature electrical properties for selected rocks and minerals with dielectric permittivity statistics
1993	Rogers	The effect of de-icing agents on water adsorption phenomena in rock aggregates
1994	Voigt	Rock stress investigations and the tectonics of Iceland
2003	Hudec	Rock weathering on the molecular level
2003	Horino	Mechanical properties of cores obtained from the unleached saline zone, Florence Creek Basin, Rio Rio de Janeiro, Colorado
2004	Harvey	Absorption and other properties of carbonate rock affecting soundness of aggregate
2006	Munoz	Schmidt hardness versus mechanical properties in rock samples: statistical correlation
2012	Glushko	A method of selecting the distribution law mode during statistical analysis of physical-mechanical properties of rocks
2014	Das Gupta	Comparison of lithologic and structural controls on fracturing in carbonate rocks
2017	Sorenson	Statistical analysis of laboratory compressive strength and Young's modulus data for the design of production pillars in coal mines
2021	Nelson	Finite element analysis of the temperature distribution within a triaxial apparatus sample assembly
2023	Holcomb	A quantitative model of dilatancy in dry rock and its application to western granite
2026	Baecher	Statistical description of rock properties and sampling
2028	Richter	Mechanical problems of determining structural-geological primary data in rock and their further processing into statistical characteristics of rock associations
2029	Rasmann	Variance analysis and its application for geological purposes
2029	Rasmann	Application of mathematical-statistical models for geological purposes, example of the physical evaluation of reservoir rocks
2038	Tschierske	Statistical analysis of slope forms in the Alt(1) clay of the Franconian Alb
2040	Kaebel	Experience with mathematical-geological methods in engineering-geological works
2056	Dabrowski	Mean densities of pre-Devonian sedimentary rocks in Poland and their depth dependence
2061	Kolomenskiy	The utilization of engineering experiments in the analysis of the principal components of various rocks
2065	Hentschel	Structure of the salt of Etzel salt dome derived from cores and logs
2081	Cole	Velocity/porosity relationships in limestones from the Portland group of southern England
2091	Paul	Distribution analysis of soil-physical characteristics for engineering geological purposes
2091	Jourenq	The properties of carbonate rock
2093	Phillips	International field year for the Great Lakes
2096	Perry	Statistical study of geopressed reservoirs in southwest Louisiana

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2099	Bondarik	Statistical interpretation of laboratory test data of rocks; generalization and calculation parameters
2100	Skinner	Rock property correlation, Crescent Mine, Idaho
2100	Lundquist	Rock structure design by failure probabilities
2101	Robinson	Engineering geologic, geophysical, hydrologic and rock-mechanics investigations of the Straight Creek tunnel site and pilot bore, Colorado
2102	Johnson	Anisotropy of physical properties in metamorphic rocks
2103	Dudley	Statistical tests for preferred orientation
2103	Edwards	Engineering geologic map units for highway planning: a quantitative approach
2104	Minassian	Statistical survey data on the physical properties of rocks
2106	Modirrousta	A study of the engineering-geological homogeneity of the physical properties of rocks
2107	Altsev	Statistical analysis of data on shear strength of loessal rocks in Tashkent
2111	Amorim	The origin of porosity in sandstones
2112	Kasemann	Characteristics of reservoir rocks on a statistical basis
2116	Robinson	Statistical interpretation of laboratory tests on rocks
2119	Polubinski	Application of correlation and regression analysis of the study of the relationship among elastic wave velocity, density, and carbonate properties of rocks
2119	Bondarik	The problem of determining rock properties, based on the theory of variability
2121	Chiel	Use of MDC method-Polish variety of PERI method in engineering-geologic programming
2122	Bent	Devices and techniques for the rationalization of statistical measurements of fabric elements in tectonic and rock mechanical investigations
2123	Nikolaev	Variability patterns in the engineering properties of alluvial and loess rocks with reference to the distinction of regional engineering-geologic units
2123	Komarov	The use of information theory to evaluate the relationships and structure of diagnostic classifications in engineering geology
2124	Ruddock	Properties and position in lateritic ground, some statistical relationships
2125	Murmanov	A statistical study of relationships between rock properties
2125	Neiler	Statistical mechanics of unconsolidated and consolidated rocks
2125	Bondarik	Application of sequential analysis in engineering-geologic sampling
2126	Williams	A statistical study of relationships between rock properties
2126	Judd	Strain distribution around underground openings
2127	Ware	The probabilistic nature of failure in the geologic universe
2127	Schneidegger	Some implications of statistical transport theory in rock mechanics
2128	West	Analysis of textural and physical factors contributing to the abrasion resistance of some Indiana carbonate aggregate
2128	Schneidegger	Some implications of statistical transport theory in rock mechanics
2128	Ware	The probabilistic nature of failure in the geologic universe
2128	Coates	Rock mechanics principles
2128	Camradav	Modulus of elasticity of a rock determined by four different methods
2128	Judd	Correlation of rock properties by statistical methods

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2093	Johnson	Predicting potential heave and heave with time in swelling foundation soils
2095	Jonenberg	Statistical estimations of geological material model parameters from cylindrical in-situ test data
2099	Natalucci	The microstructure of loess and its relationship to engineering properties
2106	Brault	Statistical relationships between geotechnical properties of Gulf of Mexico sediments
2108	Ballard	Dynamic foundation investigations IAA-2A radar site
2114	hass	Correlation of rapid hydrometer analysis for select material to existing procedure
2115	iden	Use of a one-point liquid limit procedure
2141	cas	A comparison of clay contents determined by hydrometer and pipette methods
2143	charnath	A statistical study of soil sampling
2145	cas	Engineering index properties of some surficial soils in Illinois
2146	cas	Statistically controlled engineering soil survey
2148	charnath	Engineering soil report
2148	watts	Distribution and engineering properties of North Carolina soils
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2169	Kleiss	Factors for soil loss impact prediction
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2173	frizter	Estimates of moving average processes
2174	atta	Statistical analysis of geotechnical records
2175	ire	Simulation of random packing of spheres
2176	caranake	Probabilistic modeling of soil profiles
2179	Akumazaki	Predictability of volume changes of clays
2180	ire	Statistical evaluation of soils test data - factor analysis
2181	Kucall	Method for the application of soil mechanics to heterogeneous soils
2182	Kucall	Applicability of regression analysis in soil mechanics with the help of databanks
2183	att	Influence of void distribution and entropy on the engineering properties of granular media
2184	grand	Regression analysis of soil compressibility
2185	delit	Brick and water content of soil clays - mineralogical and mechanical interrelationships
2186	clay	Correlations between plasticity indices of clays
2187	wald	Considerations in determination of soil mechanical characteristics based on the probability theory
2188	Matsui	Statistical study of some properties and failure characteristics of saturated soils
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2189	delit	Correlations between soil mechanical properties of natural and remolded soils
2190	delit	Statistical study of the dynamic and static lateral experiments
2191	delit	Statistical study of results of lateral geotechnical tests on the class of clays
2192	Matsui	Averaging for the evaluation of soil mechanical properties
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2210	Bachet	The effect of genetic factors on the cohesiveness of correlation between properties
2211	Acar	Interference effects of soil
2212	colley	Modeling climatic effects on clay chemical states
2213	delit	Engineering geology correlation of soil class - statistical analysis
2214	delit	Soil physical characteristics of some sedimentary rock samples from the California coast - statistical analysis
2215	delit	Application of discriminant analysis and Mahalanobis distance to a study of the distribution of soil samples
2216	delit	Ordered vectors
2281	Linmen	Correlation of lithologies and soil mechanics properties of the soil in coastal sedimentary basins with water
2282	delit	Statistical study of results of geotechnical tests made on the laboratory specimens of clay with different
2283	atta	State of stress and deformation in a elastic structure in triaxial test on soil and clay, examination of the response of
2284	delit	water
2285	atta	Soil mass and volume relationship for a Vertisol
2286	delit	Statistical analysis of marine clay deposits
2287	delit	Spatial variability of flow parameters in a stratified sand
2288	delit	geotechnical data bank for Indiana
2289	delit	Use of cluster analysis in the derivation of geotechnical classifications
2290	Akumazaki	Some resistant properties of soils
2291	delit	Numerical identification of some geotechnical parameters
2292	delit	On the determination of stress state in the simple shear apparatus
2293	delit	Automated data acquisition, transducers, and dynamic testing for the geotechnical tests with water
2294	delit	Finite element analysis of heat and moisture transfer in unsaturated soils
2295	delit	Mineralogical and geotechnical controls on the structure and strength of British soil and water
2296	delit	Settlement and strength characteristics of soft Bangkok clay
2297	delit	Prediction of undrained behavior of sand deposits
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2308	delit	ground behaviors from numerical calculations and dynamic tests
2309	delit	Dynamic and earthquake analysis of some shear wall structures with and without soil-structure interaction
2310	delit	unequal settlements effect on foundation soil
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2312	delit	Experience with mathematical and physical models in engineering geotechnical works
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2315	delit	Investigation and statistical analysis of the geotechnical properties of clayey soils
2316	delit	Some comments on the association between saturated hydraulic conductivity and texture of the soil class of clays
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2320	delit	Frequency distributions and correlations of soil properties
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2074	Stamatopoulos	The specific constrained modulus
2075	Silvestri	Elastic parameters for soils with cross-anisotropy
2076	Marsal	A true triaxial apparatus to test rockfills
2077	Humphress	Some empirical relationships between drained friction angles, mechanical analyses and Atterberg limits of natural soils at Kaiping Dam
2081	Moutoussis	The effect of alteration the Miocene clays composition upon their collodial properties
2082	Koense	Engineering properties and slope form in granular soils
2083	Bell	Comparison of relative densities estimated using different approaches
2084	Schulze	Examples of evaluating the results from sounding tests
2085	Law	Field and laboratory determination of maximum density in coarse sands and gravels for Wica Dam
2086	Costa	Effect of variations in maximum density on relative density
2087	Costello	Statistical significance of the relative density
2088	Friedman	Variability of laboratory relative density test results
2089	Lavenas	An analysis of relative density measurements, results of a comparative test program
2090	McMullin	A method for the application of soil mechanics to non-homogeneous soils
2091	Paul	Statistical analysis of geophysical characteristics for engineering geotechnical purposes
2092	Anderson	Statistical correlation of physical properties and soil velocity measurements
2093	Lumb	Application of statistics to soil mechanics
2104	Scale	Nonlinear characteristics from deposits near Rosarion, Alberta
2110	Ortova	Analysis of models of mechanical properties parameter distributions studied for soil covers
2111	Florea	Statistical study of the liquefaction index of soils
2112	Karral	Stratigraphic succession and the physico-mechanical nature of loess in all detected to means of soil testing
2113	Kalls	Additional information about a loess soil from a study obtained by statistical processing of the existing field and geotechnical data
2114	Braant	Statistical relationships between geotechnical properties of soft to Mexico sediments
2115	Bandarik	Application of sequential analysis to engineering geology modeling
2118	Petersen	Massive characteristics of Pennsylvania soils
2120	Lumb	The variability of natural soils
2121	Cardone	A statistical forecasting of engineering properties and compression index of soils, Salt Lake City, Utah
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Stratigraphic Correlation, Mapping and Regional Surveys

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2191	Vanmarcke	Probabilistic modeling of soil profiles
2212	Vick	Probabilistic approach to geologic investigations for hard-rock tunnels
2226	Behr	Apparatus and techniques for rationalization of structural statistical data in tectonic and rock mechanical investigations
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2229	Lindner	Lithofacies correlation and soil-mechanical properties of coastal Holocene sediments
2231	Wiatr	Statistical model of engineering-geology environment of underground valleys in the Turek area
2231	Vidal-Font	Attempt at a geotechnical assessment of the geological map of the interesting zone by SDAU of Toulouse
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1844	Presley	Statistical analysis of lithologic interpretations from well logs
1861	Lindner	Correlation of lithofacies and soil mechanics properties of the Holocene coastal sediments of the southern North Sea with multivariate statistical methods
1884	Raymond	Ore estimation problems in an erratically mineralized ore body
1919	Sheshukov	The use of mathematical models of geological fields during large-scale engineering geological studies
1919	Bondarenko	Constructing a map of creep activity using computers
1925	Leytsin	Statistical approach to problems in the classification of rock complexes
1988	Cubitt	Automatic identification and evaluation of geotechnical zones for till
2000	Ramsden	Estimating densities in contoured orientation diagrams
2014	Milligan	Grouping of marine sediments using a multivariate analysis of seismic profiles
2042	Dean	Possible interaction between thin-skinned and basement tectonics in the Appalachian Basin
2043	Andrews	Statistical zonation as an aid to geotechnical evaluation of oceanic sediments
2046	Perry	Engineering geology of the northern portion of the Illinois shore of Lake Michigan
2054	Denness	Engineering evaluation of seabed sediments by cluster analysis
2072	Cruden	Errors in strike and dip measurements
2075	Thomas	Statistical delimitation of sinkhole areas
2087	Nascimento	Safety and safety factor in engineering geology
2091	Khmelevskoy	The statistical data for the interpretation of complex geological and geophysical investigations
2098	Ghez	Statistical computing of matrix-block volume in a fissured reservoir
2100	Rats	Structural models in engineering geology
2103	Lipinska	Application of factor analysis, R-mode, to the study of geological populations of tills from Szczecin and its vicinity
2107	Rozovski	Introduction to the theory of geologic similarity and natural modelling
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Subsidence

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1904	Morzan	The mechanisms of ground surface subsidence above compacting multiphase reservoirs and their analysis by the finite element methods
1904	Kosloff	Finite element simulation of Wilmington oil field subsidence; II, Nonlinear modeling
1916	Kosloff	Finite element simulation of Wilmington oil field subsident; I, Linear modeling
1952	Ertekin	Numerical simulation of the compaction-subsidence phenomena in a reservoir for two-phase nonisothermal flow conditions
1967	Ueshita	Modeling of the Nobi ground water basin to solve the subsidence problem
1988	Keogh	Ground movements associated with the failure of a tunnel lining in the London Clay
1989	Stephenson	Analysis and prediction of ground subsidence due to coal mine entry collapse
2013	Schreffler	A case study of the surface subsidence of the Polesine area
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2129	Scott	The relationship of geophysical measurements to engineering and construction parameters in the Straight Creek tunnel pilot bore, Colorado
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2137	Robinson	Engineering geology of Straight Creek tunnel site, Colorado
2239	Coates	Probability of pillar failure at Elliot Lake
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1841	Harrington	Time-dependent closure analysis of a nuclear waste repository in bedded salt
1852	Docter	The use of geostatistics in high level radioactive waste repository site characterization
1856	Mucciardi	Statistical investigation of the mechanics controlling radionuclide sorption; Part II
1857	Chan	Thermal and thermomechanical data from in-situ heater experiments at Stripa, Sweden
1866	Garling	Finite element analysis of thermal convection in deep ocean sediments
1868	D'Alessandro	Radioactive waste disposal into Boom Clay Formation; probabilistic assessment of the geological containment
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1883	Albrecht	Rock mechanical aspects of final storage radioactive waste in salt domes with emphasis on the flow of rock salt
1894	Serne	Preliminary results on comparison of adsorption-desorption methods and statistical techniques to generate Kd predictor equations
1911	Stressdoeter	Analysis of the elastoplastic behavior of gas storage cavities in salt deposits by finite element method
1916	Petrie	Use of a computer model in the safety assessment of buried nuclear waste repositories at a hypothetical site in the Columbia Plateau Basalts
1940	Hilber	Transient response of fractured rock systems to fluid injection; a finite element study
1944	Komada	Numerical method on underground containment of fission products at a hypothetical accident in underground nuclear power plant
1946	Fuh	Annular rock caverns for energy storage under Fourier expendable stress fields
1959	Neuzil	Fracture leakage in Cretaceous shales and its significance for underground waste disposal
1986	Frind	Application of unsaturated flow properties in the design of geologic environments for radioactive waste storage facilities
2026	Thoms	Site specific studies for possible ongoing salt dome movement
2026	Mahlab	Stability of a radioactive waste repository in the Canadian Shield
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2205	Matsuo	Statistical study on a conventional safety factor method
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2092	Scholl	Low-rise building damage from low-amplitude ground motions
2096	Anderson	Statistical correlation of physical properties and sound velocity in sediments
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1960	Reger	Discriminant analysis as a possible tool in land-slide investigations
2004	Fisher	Prediction of shoreline erosion trends from synoptic beach surveys, Rhode Island Coast
2012	Anonymous	Earth Resources Program; development of a computer-aided procedure for the National Programs of inspection of dams
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2160	Bondurant	Statistical analysis and modeling of the physical, mechanical, and strength properties of oil shale
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2174	Kramer	Applicability of regression analysis to investigate the influence on the carrying capacity of ground anchors
2177	Blum	Probabilistic procedures for peak ground motions
2178	Raymond	Railroad ballast load ranking classification
2185	Chamberlain	Resilient response of two frozen and thawed soils
2189	Brenner	Measurement and prediction of vibrations generated by drop hammer piling in Bangkok subsoils
2190	Kogure	Statistical forecasting of compressibility of peaty ground
2191	Marcuson	SPT and relative density in coarse sands
2199	Rizkallah	Applicability of regression analysis in soil mechanics with the help of data-banks
2203	Tang	Probability-based short term design of soil slopes
2204	Azzouz	Regression analysis of soil compressibility
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2207	Jaworski	Analiza Korelacyjna W Petrofizyce (correlation analysis in petrophysics)
2210	Chernyak	Determination of rock displacements at the periphery of preparatory workings affected by mining-out work
2224	Summers	Water jet cutting of sedimentary rock
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2224	Haseofer	Some multivariate probabilistic techniques in geotechnical engineering
2229	Lindner	Lithofacies correlation and soil-mechanical properties of coastal holocene sediments from the southern North Sea with multivariate statistical methods
2232	Parrish	A non-linear least square fitting approach for determining activation energies for high temperature creep
2233	Komarov	Multivariate statistical analysis in engineering geology
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1847	Bondurant	Statistical analysis and modeling of the physical mechanical, and strength properties of oil shale
1847	Bridharan	Prediction of frequency and amplitude of foundations at resonance
1842	Islami	Seismic aspects of Taleghani Dam
1858	Marechal	The practice of mining geostatistics in 1980
1860	Panek	Estimating mine pillar strength from compression tests
1866	Hevne	Mathematical-statistical relations between rock mechanic and petrophysical parameters
1880	Lachapelle	Empirical determination of the gravity anomaly covariance function in mountainous areas
1886	Von Fahlbusch	Recent movement in the northern Upper Rhine Graben; integration of geodetic, geologic and soil mechanics data
1886	Hevne	Dependence of rock density on chemical oxide contents and ultrasonic velocities
1896	Livneh	Using indicative properties to predict the density-moisture relationship of soils
1897	Romanova	Research in mathematical geology
1915	Duvall	Least squares calculation of horizontal stresses from more than three diametral deformations in vertical boreholes
1918	Calle	Determination of earth pressures on sheet pile walls from measures of deflections and bending moments
1924	O'Brien	The correlation of response spectral amplitudes with seismic intensity
1982	Waldo	An approach to seismic zoning in southern New England
1994	Morita	Regression analysis and error evaluation for parameter determination in petroleum engineering problems; error sensitivity analysis for search parameters and predicted performance
2004	Harvey	Absorption and other properties of carbonate rock affecting soundness of aggregate
2011	McWilliams	Multivariate analysis techniques with application in mining
2012	Das Gupta	Comparison of lithologic and structural controls on fracturing in carbonate rocks
2014	Milligan	Grouping of marine sediments using a multivariate analysis of seismic profiles
2015	Cruden	Simple graphical methods for estimating the confidence region about the orientation of the intersection of two planes
2029	Rasemann	Mathematical problems in geology
2029	Rasemann	Variance analysis and its application for geological purposes
2040	Kaebel	Experiences with mathematical-geological methods in engineering-geological works
2043	Andrews	Statistical zonation as an aid to geotechnical evaluation of oceanic sediments
2048	Brown	Multivariate analysis of petrographic and chemical properties influencing porosity and permeability in selected carbonate aquifers in central Pennsylvania
2050	Woodfork	Univariate and multivariate statistical analysis of West Virginia landslide data
2055	Dimitriev	Results of the application of correlation and regression analyses to the determination of factors influencing the reworking of the shores of the Volograd water reservoir
2065	Trifunac	Preliminary empirical model for scaling Fourier amplitude spectra of strong ground acceleration in terms of earthquake magnitude, source-to-station distance, and recording site conditions
2095	Iyengar	Probability of failure of structures under earthquake excitations
2100	Ismay	Variations in the significance of soil and testing parameters on permeability at different stages of consolidation
2110	Sato	Determination of the center of the distribution of collapsed houses
2119	Fil'shtinskiy	Application of correlation and regression analysis of the study of the relationship among elastic wave velocity, density, and carbonate properties of rocks
2121	Bardwell	Some statistical features of the relationship between Rocky Mountain Arsenal waste disposal and frequency of earthquakes
2123	Ege	Stability index for underground structures in granitic rock
2123	Ruddock	Properties and position in lateritic, some statistical relationships
2124	Bardwell	Some statistical features of the relationship between Rocky Mountain Arsenal waste disposal and frequency of earthquakes
2129	Perez-Romales	Simultaneous determination of basic geometrical characteristics of porous media
2130	Hammel	A mathematical model for pit slope stability
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2133	Maguwaru	Probability of earthquake occurrence estimated from results of rock fracture experiments
2134	Nees	Probabilistic analysis and design of a retaining wall
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2136	Kizick	Uncertainty of settlement analysis for overconsolidated clays
2137	Lundberg	Statistical theory of the polyaxial compressive strength of materials
2138	Nakano	Statistical method for analysis of diffusion in soils
2139	Li	Safety factors and the probability distribution of soil strength
2140	Poljanec	Decision theory applied to settlement predictions
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2144	Wu	Probabilistic soil exploration case history
2145	Karaha	Probabilistic modeling of uncertainties in sampling and testing for undrained strength
2146	Remick	Partial coefficient design in geotechnics
2147	Li	Probabilistic evaluation of penetration resistance
2148	Athanasiou-Orivas	Probabilistic evaluation of safety of soil structures
2149	Li	Statistical theory of fragmentation
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1897	Li Shuang	Probabilistic earthquake expectancy in the northeast Indian region
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1900	Li	Seismic zoning in Canada, some modifications to current maps
1901	Algermissen	New probabilistic hazards maps for the U. S., a progress report
1902	Shenham	Late Quaternary faulting as a guide to regional variations in long-term rates of seismic activity
1903	Chameau	Probabilistic and hazard analysis for pore pressure increase in soils due to seismic loading
1904	Li	Probabilistic evaluation of loads
1905	Li	Probability of earthquake occurrence in the vicinity of the Chena flood control dam near Fairbanks, Alaska
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2090	Baecher	Geotechnical reliability of offshore gravity platforms
2092	Bidwell	Risks and costs for ocean structures
2092	Hein	Effects of earthquake on system performance of water lifelines, seismic design decision analysis
2111	Wickham	Research in ground support and its evaluation for coordination with system analysis in rapid excavation
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2150	Smith	Probability theory in geotechnics - an introduction
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2155	Balasubramanian	Performance of friction piles in Bangkok subsoils
2158	Athanasios-Grivas	Reliability approach to the design of geotechnical systems
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2171	Matsuoka	Prediction of slope slide by probability of failure
2173	Grivas	Reliability analysis of retaining structures
2173	Madhav	Pile capacity - a reliability approach
2181	Bell	Design earthquake motions based on geologic evidence
2185	Veneziano	Reliability analysis of slopes - frequency-domain method
2190	Yong	Application of risk analysis to the prediction of slope instability
2192	Hoek	Rock slopes
2192	Gurtin	Study of attenuation parameters for California
2194	Pirouan	Slope stability analysis and design based on probability techniques at various risk
2195	Yong	Application of risk analysis to prediction of slope instability
2195	Pender	Probabilistic assessment of the stability of a cut slope
2196	Alonso	Risk analysis of slopes and its application to slopes in Canadian sensitive clay
2197	Eisenberg	Safety of seismic protective systems with reserve elements
2198	Schulze	Applications of Statistics and Probability in Soil and Structural Engineering and Literature Survey of the Proceedings, 1975
2200	McMahon	Probability of failure and expected volume of failure in high rock slopes
2202	Boydell	On the reliability of flood levee systems
2203	Labou	Applications of first order uncertainty analysis to the finite elements method in geotechnical engineering
2205	Matsuoka	Statistical study on a conventional "safety factor method"
2206	Ko	Dynamic behavior of pit slopes in response to blasting and precipitation
2209	Wu	Stability of embankment on clay
2212	Coates	Probability of pillar failure at Elliot Lake
2212	Vick	Probabilistic approach to geologic investigations for hard rock tunnels
2217	Wu	Uncertainty, safety, and decision in soil engineering
2218	Lafiteau	Rock mechanics and risk in open pit mining
2220	Kraft	Acceptance specification of compacted soils
2221	Matsuoka	Stochastic study on some properties and failure probability for unsaturated soils
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2225	Nishimatsu	Statistical distribution of failure life and the fracture mechanism of the rock
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2234	Kuznetsov	Attaining statistical reliability in models of random properties of a continuous medium
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1823	Cheng	Probability of failure and safety factors in stability of natural slopes
1826	Howland	A simplified procedure for reliability analysis in geotechnical engineering
1829	Simons	Statistics, reliability theory and safety factors
1829	Hoek	Statistics, reliability theory and safety factors
1904	D'Andrea	Probabilistic partial safety factor design techniques for undrained soil stability problems
1920	Lomnitz	Canadian methodologies of probabilistic seismic risk estimation discussion and reply
1930	Harr	Reliability and the factor of safety due to piping
1930	Anderson	Application of seismic risk analysis to problems in microzonation
1931	Patwardhan	Location for critical facilities based on two-level earthquakes
1933	Cronev	The prediction of the performance of flexible pavements using stress analysis techniques
1934	Michiam	Analytical model for drilled shaft foundations
1935	Randolph	The effect of pile permeability on the stress changes around a pile driven into clay
1938	Hanza	The design of footings on cohesionless soil
1945	Gartung	Viscoplastic finite element analysis of tunnel sections in grouted sand
1948	Pariseau	A finite element approach to strain softening and size effects in rock mechanics
1949	Cramer	Finite element analysis of stress distribution, induced fracture and post-failure behavior along a shear zone in rock
1963	Smith	Numerical and physical modeling
1972	Pegram	Some simple expressions for the probability of failure of a finite reservoir with Markovian input
1979	El-Moursi	Uncertainty analysis of settlement rate
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1982	Baath	Seismic risk in Fennoscandia
1996	Nelson	Numerical solution of problems involving explosive loadings
1999	Ferritto	Evaluation of probability of seismic liquefaction
2005	Davis	Numerical approximations in pile-driving analysis
2006	Munoz	Schmidt hardness versus mechanical properties in rock samples: statistical correlation
2007	Dolezalova	Underground opening and deep excavation in jointed rock
2016	Glaes	Determining seismic risk for economic optimum slope design
2018	Gupta	Stochastic time series analysis of volcanic events in Central Luzon, Philippines
2018	Omote	A new approach for estimating earthquake risk
2020	Grassias	Migration of destructive earthquakes in Middle America and associated risk of occurrence
2021	Akay	Earthquake analysis of Keban Dam
2022	Smith	Statistical estimates of the likelihood of earthquake shaking throughout New Zealand
2027	Ahorne	Probability distribution of earthquake accelerations with applications to sites in the Northern Rhine Area, Central Europe
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2017	Shah	A seismic risk contour map for Nicaragua
2017	Whitman	Seismic design regionalization maps for the U. S.
2017	Paccioli	Probabilistic assessment of seismic risk on local soil sediments
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2051	Slunga	Probability model for peak ground accelerations in Sweden
2053	Labbe	Microseismic relations for the seismic risk evaluation in Chile
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2057	Hattori	The regional distribution of the earthquake danger in Japan
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2068	Singh	How reliable is the factor of safety in foundation engineering
2070	Iang	Reliability analysis and design of braced excavation systems
2071	Lytton	Risk design of stiffened mats on clay
2071	Cornell	First-order uncertainty analysis of soils deformation and stability
2080	Iaccarino	Seismic risk in Italy for earthquakes of intensity IX
2086	Ang	Probability concepts in earthquake engineering
2090	Roth	A factor of safety approach for evaluating seismic stability of slopes
2091	Esteve	Geology and probability in the assessment of seismic risk
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2218	Pariseau	Rock mechanics and risk in open pit mining
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1975	Ratz	Statistical theory of sampling nonuniform soils
2015	Major	A general probabilistic analysis for three dimensional wedge failures
2015	Marek	Probabilistic analysis of the plane shear failure mode
2024	Sedlacek	A stochastic model for the description of the breakdown of a packet bed system by material exchange
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Stochastic Techniques

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2094	Gilbert	A probabilistic analysis of embankment stability problems
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2150	Fardis	Probabilistic analysis of deposit liquefaction
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2168	Sheinin	Computation and analysis of probabilistic characteristics of stress near underground opening in stochastically inhomogeneous rock mass
2169	Asaoka	Bayesian approach to inverse problem in consolidation and its application to settlement prediction
2171	Stoyan	On the probability of failure of slopes
2173	Grigoriu	Extremes of moving average processes
2175	Iabba	Statistical analysis of geotechnical records
2182	Singh	Stochastic seismic stability predictions of earth dams
2184	Jodrey	Simulation of random packing of spheres
2185	Veneziano	Reliability analysis of slopes: frequency domain method
2187	Fardis	Seismic soil-containment interaction: pipe safety
2191	Shinozuka	Underground pipe damages and ground characteristics
2191	Vanmarcke	Probabilistic modeling of soil profiles
2192	Gurpinar	Study of attenuation parameters for California
2193	Sadasivan	Theory for shear strength of granular materials
2196	Crandall	Biaxial slip of a mass on a foundation subjected to earthquake motions
2198	Panagiotopoulos	Variational inequality approach to stochastic friction boundary value problems and applications in soil mechanics
2198	Veneziano	Bayesian design of optimal experiments for the estimation of soil properties
2200	Dolinski	Probabilistic limit analysis of plates on plastic subgrade
2201	Vanmarcke	Probabilistic prediction of levee settlements
2202	Panagiotopoulos	Stochastic calculation of foundations with elastic unilateral and friction boundary conditions
2203	Anthanasίου-Grivas	Stochastic propagation of rupture surfaces within slopes
2205	Catalan	Earth slope reliability by a levee-crossing method
2218	Feda	Creep of soils
2221	Matsuo	Stochastic study on some properties and failure probability for unsaturated soils
2223	Nakano	Statistical method for analysis of diffusion in soils
<u>File 58</u>		
2229	Hasofer	Some multivariate probabilistic techniques in geotechnical engineering
2229	Fardis	Statistical analysis of sand liquefaction
<u>File 89</u>		
1815	Kavvas	Stochastic trigger model for flood peaks; 1, development of the model
1815	Kavvas	Stochastic trigger model for flood peaks; 2, application of the model to the flood peaks of Goksu-Karahacili
1945	Levtsin	Statistical approach to problems in the classification of rock complexes
1945	Sheinin	Computation and analysis of probabilistic characteristics of stresses near underground opening in stochastically inhomogeneous rock mass
2014	Tugal	Acoustic identification of marine sediments by stochastic methods
2018	Gupta	Stochastic time-series analysis of volcanic events in Central Luzon, Philippines
2024	Sedlacek	A stochastic model for the description of the breakdown of a packet bed system by material exchange
2030	Singh	A stochastic method for seismic stability evaluation of earth structures with strain dependent properties
2056	Kuchan	Calculation of recurrence and intensity of landslide processes
2065	Faccioli	A stochastic approach to soil amplification
2068	Koerner	Application of stochastic processes to partially saturated soils
2068	Donovan	A stochastic approach to the seismic liquefaction problem
2074	Lou	Stochastic simulation of earthquakes
2080	Blanco	Stochastic structure of the turbulent boundary shear stress process
2080	Ravaziti	Stochastic methods for motion of suspended grains
2094	Loimitz	Global tectonics and earthquake risk
2133	Coates	The effect of stress concentrations on the stability of tunnels
2135	Marsal	Stochastic processes in the grain skeleton of soils

Time Series Analysis

<u>Page No.</u>	<u>Main Author</u>	<u>Title</u>
<u>File 8</u>		
2154	Spanos	Statistics of structural responses to seismic waves filtered through rock and soil formations
2158	Gazetas	Random vibration analysis for the seismic response of earth dams
2161	de Herrera	Analysis of liquefaction potential based on probabilistic ground motions
2164	Trifunac	Dependence of the Fourier amplitude spectra of strong motion acceleration on the depth of sedimentary deposits
2166	McAnally	Ultimate load foundation design using statistically based factors
2167	Tomizawa	Identification of a one-dimensional model for a soil-layer-bedrock system during an earthquake
2174	Christian	Probabilistic soil dynamics: state-of-the-art
2176	Kiremidjian	Probabilistic site-dependent response spectra
2177	Savv	Nonstationary risk model with geophysical input
2178	Cornell	Seismic motion and response prediction alternatives
2180	Kubo	Simulation of three-dimensional strong ground motions along principal axes, San Fernando earthquake
2181	Kubo	Analysis of three-dimensional strong ground motions along principal axes, San Fernando earthquake
2182	Singh	Stochastic seismic stability prediction of earth dams
2182	Dendrou	Uncertainty finite element dynamic analysis
2184	Wu	Statistical representation of joint roughness
2187	Fardis	Seismic soil-containment interaction: pipe safety
2187	Romstad	Site dependent earthquake motions
2189	McGuire	Seismic ground motion parameter relations
2189	Romo-Organista	Finite element random vibration method for soil-structure interaction analysis
2190	Lin	Criteria for the generation of spectra consistent time histories
2191	Shinozuka	Underground pipe damages and ground characteristics
2192	Kiremidjian	Probabilistic site-dependent response spectra
2192	Anderson	Uniform risk absolute acceleration spectra
2192	Gurpinar	Study of attenuation parameters for California
2197	Zaslavsky	Comparison of bedrock and surface seismic input for nuclear power plants
2197	Eisenberg	Safety of seismic protective systems with reserve elements
2209	Yamshchikov	Creation of a methodology for making measurements in solid rock
2227	Liu	Spectral simulation and earthquake site properties
<u>File 58</u>		
2230	Khanna	Site dependent spectra for a seismic design
<u>File 89</u>		
1871	Smith	Spatial variability of flow parameters in a stratified sand
1920	Riznichenko	The Tashkent-California system of earthquake spectra
1924	Crouse	Probability of earthquake ground accelerations in San Diego
1963	Desai	Numerical methods in geotechnical engineering
1966	Desai	Numerical methods in geotechnical engineering
1966	Jurkevics	Autoregressive parameters for a suite of strong motion accelerograms
1983	Hasegawa	Seismotectonics of the Beaufort Sea
1996	Ohaski	Statistical analysis of strong motion acceleration records
2012	Sadigh	Design response spectra for moderate magnitude local earthquakes at rock and stiff-soil sites
2012	Anonymous	Earth resources program; development of a computer-aided procedure for the national program of inspection of dams
2018	Gupta	Stochastic time-series analysis of volcanic events in Central Luzon, Philippines
2020	Dezfulian	Finite element grids for dynamic response analysis
2035	Wight	Soil-structure interaction in nuclear power plants; a comparison of methods
2090	Donovan	Statistical uncertainty of design based on smoothed response spectra
2134	Lacer	A simulation of earthquake amplification spectra for southern California sites
2134	Herrera	Earthquake spectrum prediction for the Valley of Mexico
2135	Herrera	Response spectra on stratified soil

APPENDIX C: NTIS (FILE 6)

Probabilistic Evaluation of Damage Potential in Earthquake-Induced Liquefaction in A 3-D Soil Deposit

Georgia Inst. of Tech., Atlanta, School of Civil Engineering, National Science Foundation, Washington, DC. (010263012)

Technical rept.

AUTHOR: Haldar, Achintya; Miller, Frank J.
G707102 Fld 8K, 8M, 500 GRA18217

Mar 82 146p

Rept No: SCERG-101-82

Grant NSF-PFR80-06348

Monitor NSF/CEE-82003

Abstract: A probabilistic model is proposed to evaluate the risk of liquefaction at a site and to limit or eliminate damage during earthquake-induced liquefaction. The model is extended to consider three-dimensional nonhomogeneous soil properties. Literature is surveyed to identify the parameters relevant to the liquefaction phenomenon, including (1) soil parameters; (2) parameters required to consider laboratory test and sampling effects; and (3) loading parameters. The fundamentals of risk-based design concepts pertinent to liquefaction are reviewed. A detailed statistical evaluation of the soil parameters in the proposed liquefaction model is provided and the uncertainty associated with the estimation of in situ relative density is evaluated for both direct and indirect methods. In the evaluation of the liquefaction potential of a site, it was found that the uncertainties in the load parameters could be higher than those in the resistance parameters.

Descriptors: *Earthquakes, *Soil mechanics, Soil properties, Probability density functions, Damage assessment, Loads (Forces), Mathematical models

Identifiers: *Liquefaction (Soils), *Risk analysis, Seismic risk, NTISNSCEE

PB82-202276 NTIS Prices: PC A07/MF A01

Fracture Analysis of Crystalline Rocks: Field Measurements and Field Geomechanical Techniques

Institute of Geological Sciences, Harwell (England), Environmental Protection Unit. (075040001)

AUTHOR: McEwen, I. J.

G6773C4 Fld: 8G, 500 GRA18214

1980 78p

Rept No: ENPU-80-11

Abstract: The natural fractures occurring in crystalline rocks are described in terms of their occurrence in granite masses and in metamorphic rocks. Their orientations are shown to be

related to the paleo or present stresses which acted on the rocks. To the tectonic setting of the rock mass, and in some cases to any igneous banding that might exist. The analysis of fractures in surface outcrops and in boreholes is discussed in detail, and it is shown how estimates of fracture length, fracture area and fracture interconnectivity can be made from relatively simple measurements. The biases inevitably incurred during sampling are discussed in terms of their influence on the analyzed data, and methods for compensating for their effects are also included. The influence of the fracture surfaces on the mechanical properties of rock masses is described, and methods for measuring the shear strengths of fracture surfaces is discussed. The importance of the shear strength of rocks is analyzed in terms of their effects on determining the development of the fracture system. Finally the use of fracture orientations to determine the geotectonic stress field is discussed with examples from different tectonic environments.

Descriptors: *Granite, *Rock mechanics, Metamorphic rocks, Stresses, Fracture properties, Joints (Junctions), Deformation, Spacing, Probability density functions, Boreholes, Statistical analysis, Shear strength, Bins, Tunneling (Excavation)

Identifiers: *Foreign technology, NTISDMBR, NTISFNUK

PB82-176678 NTIS Prices: PC A05/MF A01

Investigation of Compaction Criteria for Airport Pavement Subgrade Soils

Army Engineer Waterways Experiment Station, Vicksburg, MS.
Geotechnical Lab. Federal Aviation Administration, Washington, DC.
Systems Research and Development Service. (1/2621607 411412)

Final rept. Mar 78-Apr 81
AUTHOR: Brabston, William N
G6134H2 Fld 8M, 1E, 50R, 500 GRA18208
Oct 81 1740
Rept No WES/TR/GL-81-11
Contract D01-FA78WAF-876
Monitor: FAA/RD-81/48

Abstract: A study was conducted to determine the effect of lowering soil density requirements for subgrades under airport pavements. The investigation was primarily a laboratory effort in which molded specimens of three different soil types, compacted to densities at and below those currently specified by FAA criteria, were subjected to repeated axial loadings in a triaxial compression chamber. The primary response parameters of interest were permanent and resilient axial strain. Test results were formulated into a statistical model to predict permanent soil strain based on soil characteristics such as density, clay content, compaction characteristics, and shear strength. The strain model was used to calculate values for permanent soil deformation at the surface of the subgrade for various combinations of soil density. Results of the test indicated that the wide variation in soil response among the three materials tested precluded any general alteration in current FAA compaction criteria. (Author)

Descriptors: *Pavement bases, *Soil mechanics, *Runways, Soil dynamics, Compacting, Laboratory tests, Soil stabilization, Density, Deformation, Loads (Forces), Strain (Mechanics), Resilience, Structural response, Clay, Sand, Flexible structures, Statistical analysis, Rigidity, Moisture, Models, Airports

Identifiers: Axial strain, Subgrade soils, NTIS0001XA, NTIS001FAA
AD-A08 51R/2 NTIS Prices: PC A08/MF A01

Limit State Design in Geotechnical Engineering

Cambridge Univ. (England), Dept of Engineering (00-5285015)
AUTHOR: Bolton, M D
G5603G1 Fld 13M, 8M, 830, 500 GRA18202
1981 35p
Rept No CUFD/D-SOILS/IR-103-1981
Also pub. As ISSN-0309-7439.

Abstract: Contents. Development of design procedure. Limit

states in geotechnical engineering; Uncertainty; Interpreting geotechnical data; Permeability; Compressibility; Undrained strength; Angle of shearing resistance; Water pressures; Selecting limit state modes; and limit state envelopes.

Descriptors: *Limit design method, Soil mechanics, Probability theory, Construction

Identifiers: *Foreign technology, *Geotechnical engineering, Limit states, NTISFCUFD, NTISFNUK

FBP2-113440 NTIS Prices: PC A03/MF A01

Geotechnical Reliability of Offshore Gravity Platforms

Massachusetts Inst of Tech, Cambridge Sea Grant Coll. Program (National Oceanic and Atmospheric Administration, Rockville, MD, Office of Sea Grant (0014450233)
AUTHOR: Baecher, Gregory B.; Chan, Mark; Ingra, Thomas S.; Lee, Thomas; Muel, Louis R
G492764 Fld 13J, 8M, 47, 50R, 86M GRA18122
Dec 80 298p
Rept No MITSG-80-20
Grant NOAA O4-7-158 44079
Monitor: NOAA 81142708

Abstract: The main part of the report is organized into five broad chapters. The first presents an overview of the sources of geotechnical uncertainty in offshore structures, and the quantitative analysis of those uncertainties, and the philosophy of formal methods in geotechnical reliability analysis. The second and third examine the basic uncertain variables, dealing with environmental loads and load effects, and with site characterization and parameter estimates, respectively. Chapter 5 is an extended discussion of the problem of modeling foundation performance, and the uncertainties of that underlying. Finally, Chapter 6 considers the application of these uncertainties into overall estimates of risk and reliability to illustrate the analyses and methods developed in the course of the work. A specific site on the southern flank of Georges Bank has been chosen for discussion. Specific information on the site has been introduced as needed throughout the report.

Descriptors: *Offshore structures, *Foundations, Ocean bottom, Settlement (Structural), Soil surveys, Uncertainty principle, Reliability, Probability theory, Soil mechanics

Identifiers: *Risk analysis, NTISCOMWDA

FBP1-221438 NTIS Prices: PC A03/MF A01

Terrain Analysis by Photo Interpretation

Columbia Univ New York (088 850)

Semiannual status rept
AUTHOR Strahler, Arthur n
G2332F1 (R024
15 Nov 57 50
Contract num 26550
Distribution limitation now removed. NOTE: Only 35mm microfilm
is available. No microfiche

Abstract No abstract available.

Descriptors: (Terrain intelligence, Aerial photographs), (Photographic analysis, Terrain), Aerial photography, Air intelligence, Plants(Botany), Soil mechanics, Terrain models, Aerial reconnaissance, Surface roughness, Analysis, Statistical analysis

Identifiers: Vegetation, NTISD00XD, NTISD00XDB

AD 148 374/2 NTIS Prices PC A02/MF A01

Derivation of Parameters Necessary for the Evaluation of Performance of Sites for Deep Geological Repositories with Particular Reference to Bedded Salt, Livermore, California. Volume II. Appendices

Goldier Associates, Inc., Kirkland, WA (Department of Energy, Washington, DC (9505241)
AUTHOR Ashby, J P.; Rawlings, G. E.; Soto, C. A.; Wood, D F.; Cheney, D W
G135401 Fld 18G, 77G GRA18015
Dec 79 172p
Contract W-7405 ENG-48

Abstract: The method of selection of parameters to be considered in the selection of a site for underground disposal of radioactive wastes is reported in volume I. This volume contains the appendix to that report. The topics include specific rock mechanics tests; drilling investigation techniques and equipment; geophysical surveying; theoretical study of a well test in a nonhomogeneous aquifer; and basic statistical and probability theory that may be used in the derivation of input parameters. (ERA citation 05 011360)

Descriptors: Radioactive waste disposal, Radioactive waste facilities, Site selection, Aquifers, Drilling, Geophysical surveys, Mathematical models, Radioactive wastes, Regional analysis, Rock mechanics, Statistics, Underground disposal

Identifiers: ERDA/052002, ERDA/510500, ERDA/580100, Salt deposits, NTIS

UCRI 15166(V 2) NTIS Prices PC A08/MF A01

The Shear Wave Velocity of Boston Blue Clay, Optimum Seismic Protection and Building Damage Statistics, Report Number 6

Massachusetts Inst. of Tech., Cambridge, Dept. of Civil Engineering, National Science Foundation, Washington, DC, Engineering and Applied Science. (001450030)
AUTHOR Trudeau, Paul Joseph
G1121F1 Fld 8M, 8K, 48F, 500 GRA18013
Feb 73 66p
Rept No: SOILS PUB-317; R73-12
Grant NSF-GK-27955, NSF-GI-29936
Monitor: NSF-RA-E-73-619

Abstract: The purpose of this report is to provide a best estimate of the shear wave velocity of Boston Blue Clay to be used in soil amplification studies in the design of structures in the Boston area against earthquakes. The in situ shear wave velocities determined using the cross-hole method by Weston Geophysical Research, Inc. are compared with values obtained using MIT's Hardin Oscillator and also empirical correlations proposed by Hardin and Black. Modifications to the laboratory values and the empirical results indicated herein agree favorably with the in situ shear wave velocities of 850 to 900 feet per second.

Descriptors: Soil dynamics, Earthquakes, Seismic waves, Soil mechanics, Secondary waves, Massachusetts

Identifiers: Boston blue clay, Earthquake engineering, Boston(Massachusetts), NTISNSRA

PB80-165285 NTIS Prices PC A04/MF A01

Rock Slope Engineering Reference Manual. Part D: Slope Stability Analysis Methods

Piteau (U. R. I. and Associates Ltd., Vancouver (British Columbia) Federal Highway Administration, Washington, DC Implementation Div. (060255000)
GPO:461 Fld 138, 8G, 50A, 48F GRA18001
Jan 79 185p.

Contract DOT-FH-11-921R
Monitor: FHWA/TS-79/208-PT-D
See also Part C, PB80-10332R and Part E, PB80-10334A.
Also available in set of 8 reports PC E19, PB80-10329A.

Abstract The report discusses the various methods of slope stability analysis that are used for the different failure modes which are relevant in rock slopes. Basic theoretical aspects are discussed, as are some of the fundamental analysis methods that have been developed by workers in the field. In the Appendix, several typical problems are given which represent typical rock slope engineering problems that occur in practice. Answers to the various problems have been worked out and are described.

Descriptors *Slopes, *Slope protection, Engineering geology, Rock mechanics, Geologic structures, Failure, Reliability, Probability theory, Static stability

Identifiers *Foreign technology, Slope stability, Rock slopes, Discontinuities, NTIS/DIPIA, NTIS/FNCA

PB80-10336 NTIS Prices PC A09/MF A01

Risks and Costs for Ocean Structures

Massachusetts Inst. of Tech., Cambridge Marine Industry Advisory Services (National Oceanic and Atmospheric Administration, Rockville, MD Office of Sea Grant, (001450231)

Author: Bidwell, John B.
F2311J3 Fld 13J, 47, 8AM GRA17925
1 Jul 79 15p

Rept No. MITSG 79/18: OPPORTUNITY BRIEF-17
Monitor: NOAA-7908/912
Index No. 79-718 Zim

Abstract Three domains of uncertainty affect the design and performance of offshore structures. One domain encompasses the sampling and testing of offshore soils and the extrapolation of soil conditions from discrete sampling points to areas under planned foundations. Another domain arises in considering the pattern of forces on offshore structures to be expected from winds and waves. The third arises in modeling the interaction of the system of sea/structure/foundation/soil. This report describes work at MIT oriented toward reducing the uncertainties in each of these three domains.

Descriptors *Offshore structures, *Hydrodynamics, Soil mechanics, Ocean waves, Structural design, Probability theory

Identifiers Sea Grant program, Risk analysis, NTIS/COMDA

PB 298 852/45T NTIS Prices PC A02/MF A01

Effects of Earthquakes on System Performance of Water Lifelines. Seismic Design Decision Analysis

Massachusetts Inst. of Tech., Cambridge Dept. of Civil Engineering (National Science Foundation, Washington, DC (220 010)

Author: Hein, Klaus H.; Whitman, Robert V.
F2221B2 Fld 13B, 8K, 91J GRA17924

May 76 84p
Rept No. R76-23

Grant NSF-GI-27955
Project MIT-Order-544
Monitor NSI/RA-761699

Abstract Several past earthquakes and their impact on water systems are described, and characteristic damages which resulted are pointed out. Because of the importance of water lifeline networks after earthquakes, a method for analyzing the impact of earthquakes on their system performance is developed. The part of this analysis which deals with ground failure-induced damage to pipes in poor soil is applied to the water system of the Metropolitan District Commission, Commonwealth of Massachusetts. Various levels of pipe damage are simulated, and the impact of these damage levels on system performance is evaluated.

Descriptors *Water services, *Earthquakes, Water supply, Pipelines, Soil mechanics, Earth movements, Probability, Massachusetts, Disasters, Urban planning

Identifiers *Seismic risk, *Risk analysis, Earthquake engineering, Ground motion, NTIS/SFRA

PB 298 797/25T NTIS Prices PC A05/MF A01

Predicting Potential Heave and Heave With Time in Swelling Foundation Soils

Arm, Engineer Waterways Experiment Station Vicksburg Miss (038100)

Final report
 AUTHOR Johnson, Lawrence B
 FO021A3 Fld 13M, 8M, 9B, 500 GRA17901
 Jul 78 104P
 Rept No WES IR-5-78-7
 Monitor 18

Abstract this study evaluates procedures for predicting one dimensional potential heave of foundation soils, and the rate at which heave may occur. A computer program ULTRAI (ultimate and rate of heave) was developed for predictions of potential heave and heave with time based on two models for characterization of swell behavior. The soil suction and mechanical swell models. The soil suction model relates volume change with change in matrix soil suction and water content

Descriptors *Foundations(Structures). *Soil mechanics. heaving. Computer programs. Soil models. Field tests. Soil tests. Civil engineering. Pore pressure. Moisture content. Soil dynamics. Statistical analysis

Identifiers ULTRAI computer program. *Soil Swelling. NTIS009A

AD A054 069-551 NTIS Prices PC A09/MF A01

Investigation of Blast Resistant Water Well Concepts

Mechanics Research Inc Los Angeles Calif (388 746)

Final report 16 Apr 69 Jan 70
 AUTHOR Abildskov, Dale P ; Gardner, Terry N
 E2572G3 Fld 17B, 13M, 18C GRA17824
 Jan 70 284P
 Contract N65739 69-C 0033
 Project MPI 2324
 Monitor NREL CP 63 021
 Distribution limitation now removed

Abstract Elements of a hardened water well were defined and sized to withstand weapon threats up to 5 MI, 3,000 psi in seven different subgrade profiles. Within the objective of achieving cost effectiveness of the well designs, an attempt was made toward uniformity and simplicity of approach across the range of threat and geologic profiles. A test program was carried out to determine the susceptibility of pumps to shock and hydrodynamic pulse element costs and total well costs were determined for selected configurations in the different geological profiles. Considerable design and cost data are presented. Recommendations for further research and

development are made (Author)
 Descriptors *Water wells. Vulnerability). *Underground structures. Nuclear explosions). Hardening. Simulation. Design threat evaluation. Blast. Construction materials. Construction. Shock waves. Statistical data. Costs. Soil mechanics. Stratigraphy

Identifiers *Hardened water wells. Sanguine project. NTIS000A0

AD 875 931/851 NTIS Prices PC A13/MF A01

Statistical Theory of Fragmentation

Los Alamos Scientific Lab., N Mex *Department of Energy. (

3820000)
 AUTHOR Dienes, J K.
 E2134C2 Fld 81, 21D, 10A, 49A, 47K, 500 GRA17820
 1978 6P CONF 780509-4
 Rept No CONF 780509-4
 Contract W 7405 ENG-36
 Monitor 18
 19 Symposium on rock mechanics, Lake Tahoe, NV, USA, 1 May 1978

Abstract An initially exponential distribution of cracks that grow in size and nucleate additional cracks is analyzed, leading to an expression for the statistical distribution of cracks as a function of time in closed form. The results are used to derive a reduced modulus for the cracked material. An approach to three-dimensional calculations of fragmentation is also discussed (ERA citation 03 036883)

Descriptors *Fragmentation. *Rocks. Cracks. Distribution. Explosive fracturing. In-situ testing. Oil shales. Rock mechanics. Simulation. Statistical models. Time dependence

Identifiers ERDA/O40401. ERDA/580300. *Crack propagation. Cracking(Fracturing). NTISDE

1A UR 78 616 NTIS Prices PC A02/MF A01

Storage. Retrieval and Statistical Analysis of Indiana Shale Data

Purdue Univ., Lafayette, Ind. Joint Highway Research Project. Federal Highway Administration, Indianapolis, Ind. Indiana Div. Indiana State Highway Commission, Indianapolis.

Interim rept

AUTHOR van Zyl, Dirk J. A.

E2103C2 Fld PG. 5B, 48F, 88B GRA17820

Jul 77 154p

Rept No JHRP-77-11

Monitor FHWA/IND 78-JHRP77-11

Prepared in cooperation with Federal Highway Administration, Indianapolis, Ind. Indiana Div.

Abstract This report gives a complete summary of the test data on shales generated by ISHC and Purdue University. Details are given for a very simple storage and retrieval system which is adequate for the small amount of data (163 sets) available at the present time. Results are presented from the different statistical analyses that were performed. These results include histograms, bivariate correlation coefficients and regression equations. Reasonably good bivariate correlations exist between the different indices describing the slaking resistance of shales. These correlations are however improved by using quadratic equations. Various regression equations are proposed for determining CBR from various parameters, usually a combination of five. It became clear during the investigation that it is important to have as many complete data sets as possible for future analyses. The standardization of testing methods is also of utmost importance in order to increase the potential of the data bank.

Descriptors *Shales, *Information systems, *Statistical analysis, *Indiana, Rock mechanics, Rock tests, Geology, Data processing, Information retrieval, Classification, Laboratory tests, Field tests, Management planning

Identifiers NTIS001FHA

PR-282 597/45T NTIS Prices PC A08/MF A01

A Probabilistic Analysis of Embankment Stability Problems

Arm, Engineer Waterways Experiment Station Vicksburg, Miss. 39180

Final rept

AUTHOR Gilbert, Lawrence William

D3424F4 Fld 13B, 8M, 5(4) GRA17723

Jul 77 154p

Rept No WES-MF-5-77-10

Monitor 1A

Master's thesis

Abstract A probabilistic model is developed to predict the reliability of an embankment constructed on soft saturated clay. The model is based on a circular arc method of analysis, supplemented with a measure of the uncertainty in the resisting and overturning moments. The uncertainty in the overturning moment was considered negligible in this thesis. The uncertainty in the resisting moment was considered due to the uncertainties of bias, random testing error, and inherent soil variability. Two case studies were analyzed in this thesis by both the conventional method of analysis and the probability model. The results indicate that the uncertainties in bias correction factors are the dominant sources for both field vane testing and unconfined compression testing. The basic probability model is then extended to include the effect of embankment length on the computed failure probability. Two approaches are taken. The first is a direct extension of the basic model, considering the actual embankment length as a multiple of the minimum embankment length required to satisfy the assumption of plane strain. The second approach is a three dimensional probability model developed from a first passage failure criterion. (Author)

Descriptors *Embankments, *Clay, *Soil mechanics, Probability Models, Stability, Construction, Reliability, Soil dynamics, Safety, Risk, Failure (Mechanics), Theeses

Identifiers Probability theory, Soil stabilization, NTIS000DFA

AD A043 579/25T NTIS Prices PC A08/MF A01

Statistical Estimations of Geological Material Model Parameters from Cylindrical In-Situ Test Data

New Mexico Univ Albuquerque Eric H Wang Civil Engineering Research Facility (400976)

Final rept
AUTHOR Ikenberg, Jerrold, Collins, John D., Kennel, Bruce
D256211 F1d 8M 8K, 18C, 98, 500, 770 GRA1771
Mar 77 42p
Contract F27601 76 C 0015
Monitor AFM-IR 76-187
Prepared in cooperation with Wiggins (J H) Co., Redondo Beach, Calif. Rept no 76 1259-1

Abstract A developmental study was performed to aid in the identification of soil properties from cylindrical in situ tests (CIST) data. A mathematical algorithm was developed which, using prior estimates of the properties and velocity-time history data from the tests, provided improved estimates of the parameters in the soil model. The algorithm was tested using a computational experiment, i.e., a finite difference code was used to generate a set of velocity-time history responses based on a predetermined set of parameters. The algorithm was then used to determine a set of parameters based on the data, and comparisons were made with the exact solution. After a number of cycles through the algorithm, a set of parameters was derived which provided satisfactory matching of the velocity time history.

Descriptors *Soil mechanics, *Ground motion, *Seismic waves, Shock waves, Dynamic response, Nuclear explosion simulation, Computerized simulation, Experimental data, Velocity, Finite difference theory, Estimates, Statistical analysis, Stress analysis, Military facilities, Structural response, Mathematical prediction, Hydrodynamic codes

Identifiers CIST shots, Allow hydrodynamic code, ESP computer program, Seismic velocity, NTISDDDXA

AD A679 184/751 NTIS Prices PC A03/MF A01

A Short-Term Study of Beach Sand Movement Adjacent to Monterey Canyon

Naval Postgraduate School Monterey, Calif (25) 4501

Master's thesis.
AUTHOR Davis, Verner Wallace, Harper, John Norman Jr., Hovsha, John Freeman
D231103 F14 9J d111
May 66 54p
Monitor 18
Distribution limitation now removed

Abstract The movement of sand in the swath zone south of the

head of Monterey Canyon was studied during February and March, 1966. A stationary sampler was designed and used in conjunction with dyed fluorescent sands to trace the rate and direction of natural sand movement. A sequential multiple linear regression program was used to statistically analyze the effects of this canyon and several other environmental parameters on the movement of beach sand. In all observations made, the sand was found to move toward the canyon head. The canyon also appears to be a major factor affecting the rate of beach sand drift. (Author)

Descriptors (*Sand, *Beaches), Drift, Coastal regions, California, Markers, Ocean bottom topography, Sampling, Statistical analysis, Measurement, Samplers, Marine geophysics, Marine geology, Motion, Transportation, Soil mechanics

Identifiers Monterey bay, NTISDDDXD

AD A88 510/951 NTIS Prices PC A04/MF A01

AD-A136 355

COMPENDIUM OF ABSTRACTS ON STATISTICAL APPLICATIONS IN
GEOTECHNICAL ENGIN..(U) ARMY ENGINEER WATERWAYS
EXPERIMENT STATION VICKSBURG MS GEOTE..

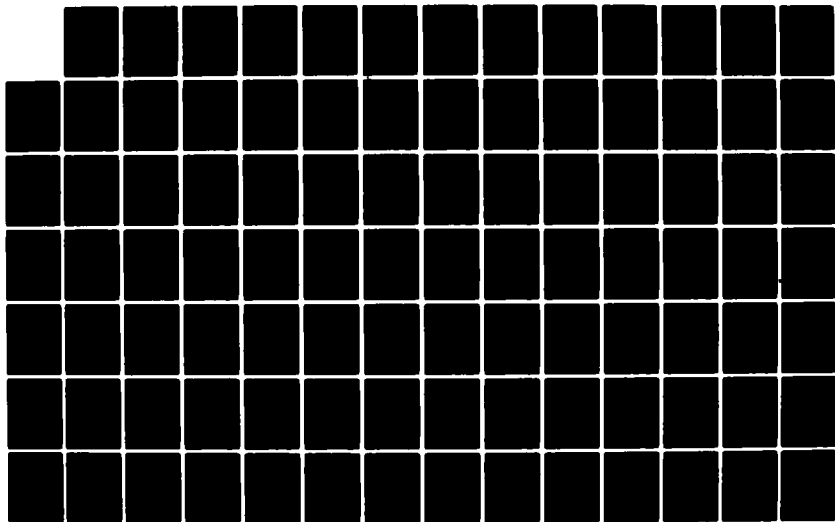
2/6

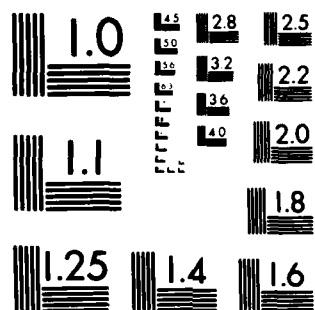
UNCLASSIFIED

M E HYNES-GRIFFIN ET AL. SEP 83

F/G 13/2

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

Department of Defense Land Fallout Prediction System. Volume II - Initial Conditions

Technical Operations Inc Burlington Mass (343 000)

Final rept.

AUTHOR: Norment, H. G.; Ing, W. Y. G.; Zuckerman, J
D2195G2 Fld: 18C, 18H, 8M, 48 d7712

30 Sep 66 73p

Rept No: 10-B-66-44

Contract: DA-18-035-AMC-346(A), DA-18-035-AMC-737(A)

Monitor: DASA-1800-2

See also Volume I dated 27 Jun 66, AD-483 897L

Distribution limitation now removed.

Abstract: A set of initial conditions to serve as primary inputs to the Department of Defense Land Fallout Prediction System (DELFI) is derived. The set consists of lower-boundary conditions for use by a cloud rise and growth simulation model. The conditions are time, temperature, soil burden, fraction of the soil burden in the vapor phase, and size-frequency distribution of fallout particles. The DoD Land Fallout Prediction System predicts local fallout patterns from land-surface nuclear detonations. (Author)

Descriptors: (+Nuclear explosions, Fallout), (+Fallout, Mathematical prediction), Surface burst, Louis(forces), Computer programming, Mathematical models, Soil mechanics, Particles, Clouds, Atmospheric temperature, Meteorological phenomena, Distribution, Statistical analysis, Frequency, Time . Nuclear weapons, Computer logic, Operation, Underground explosions, Mathematical analysis, Specifications, Models(Simulations), Thermal radiation, Cratering, Aerosols

Identifiers: Nuclear fireball, Fortran, Nuclear weapons, Weapons effects, Point-source dissemination, Yield(Nuclear explosions), NTISD00XD

AD-803 144/55T NTIS Prices: PC A04/MF A01

Trafficability Classification of Thailand Soils

Army Engineer Waterways Experiment Station Vicksburg Miss (038 100)

Final rept. Aug 64-May 66

AUTHOR: Meyer, M. P.

D2054J4 Fld: 8M d7711

Jun 67 143p

Rept No: AEWES-TR-3-753

Project: DA-1-V-O-21701-A-046

Task: 1-V-O-21701-A-046-02

Monitor: 18

Distribution limitation now removed.

Abstract: Pertinent soil trafficability data were collected

during the wet season at 846 sites in Thailand. The soils were identified according to the Unified Soil Classification System and the U. S. Department of Agriculture textural Classification system. Two general topographic positions (high topography and low topography) and two general levels of wetness were considered. A scheme for classifying soils according to their trafficability was developed. The scheme lists the soil types in order of decreasing trafficability under each of three topography-wetness level categories and shows the probability of successful passage on each soil for vehicles of known soil strength requirements. The scheme permits the estimation of the probability of a successful operation for given soil type, topography, and wetness-level conditions. If a choice of several routes and vehicles is available, the determination of the vehicles with the best chances of success over a given route or of the best route for given vehicles can be made. (Author)

Descriptors: (+Soils, Trafficability), (+Thailand, Soils), Mobility, Terrain, Moisture, Soil mechanics, Classification, Operation, Vehicles, Tables(Data), Probability, Statistical analysis, Plastic properties, Mechanical properties

Identifiers: Mers(Mobility environmental research study), Mobility, Offroad traffic, NTISD00XD

AD-R08 540/95T NTIS Prices: PC A07/MF A01

Pressure and Gravity Effects on the Simulation of Meteorite Impact Craters

Air Force Inst of Tech Wright-Patterson AFB Ohio School of Engineering (012 225)

Master's thesis

AUTHOR: Smith, Jerry Alan; Franklin, Eldon Gene

D192411 F1d: 38, 190, 8G d7710

Jun 67 158p

Rept No: GSF/MC/67-2

Monitor: 18

Distribution limitation now removed.

Abstract: Meteorite impact craters were simulated by detonation of chemical explosives in a cohesionless medium at various air pressures (0.005 mm Hg to 1000 mm Hg) and at four gravity conditions (0.17 g, 0.38 g, 1.0 g, and 2.5 g). Crater parameters (diameter and depth) were measured to determine the effects of pressure and gravity on the cratering process. Lip height was measured only in the pressure work. Diameter and depth increased approximately 12% and 10% respectively with decreasing pressure while lip height remained relatively constant. Crater diameter decreased from a mean value of 47.9 cm at 0.17 g to 33.7 cm at 2.5 g. Depth did not vary appreciably from 1.0 g to 2.5 g (7.7 cm to 5.7 cm). A scaling equation was derived to relate crater diameter, pressure, gravity, and energy in a cohesionless medium within the pressure range of 300 mm Hg to 1000 mm Hg and the gravity range of 0.17 g to 2.5 g. To obtain additional information on the mechanics of crater formation, craters were formed in mediums with horizontal layering. Scouring and compaction were found to be predominant processes in both the pressure and gravity phases. (Author)

Descriptors: (*Meteorites, *Cratering), (*Extraterrestrial topography, Configuration), Gravity, Pressure, Energy, Model tests, Impact, Explosion effects, Velocity, Shear stresses, Epicenters, Shock waves, Soil mechanics, Statistical processes, Analysis of variance, Vacuum apparatus, Photographic analysis, Theses, Mars(Planet), Moon

Identifiers: Craters, Impact craters, NTISD00XD

AD-817 796/65T NTIS Prices: PC A08/MF A01

Experimental Stress Analysis of Overpressure Facility for Project Hest II, Minuteman Missile Site D-1

Air Force Weapons Lab Kirtland AFB N Mex (013 150)

Technical rept, Jun-Jul 66

AUTHOR: Ayala, Santos J.

D1875DA F1d: 16A, 160 d7710

Mar 67 32p

Rept No: AFSWC-TR-66-35

Project: AF-1338T-324

Monitor: 18

Distribution limitation now removed.

Abstract: Stress data were obtained during a surcharge loading of the HEST II overpressure facility. The two objectives accomplished were the control of the surcharge loading and an evaluation of the load-carrying capacity of the facility. The behavior of the structure was determined during the surcharge loading using the strain gage technique and observing the stress-strain relationships. A preliminary qualitative analysis was made to determine the structure mode of failure. Stress-strain relationships in the elastic range were obtained by analytical methods. Specimens were taken from each structural member at locations of anticipated maximum stress. Uniaxial tensile tests were conducted on these specimens to determine the characteristic stress-strain curve of each material. The main function of the facility was to resist loads that were applied to it. Although the facility experienced some localized yielding, there was no structural damage. Apart from tabulated results, the report includes a general discussion and other pertinent background material to acquaint the reader with the techniques used to obtain the stress information and to achieve the required objectives. (Author)

Descriptors: (*Guided missile launchers, Stresses), Guided missile silos, Launching, Surface to surface missiles, Solid propellant rocket engines, Pressure, Loads(Forcns), Compressive properties, Strain gages, Underground, Beams(Structural), Steel, Soils, Soil mechanics, Moments, Shells(Structural forms), Statistical analysis, Plastic properties, Tensile properties, Shear stresses, Launching sites

Identifiers: Hest project, Minuteman, Overpressure hardening, NTISD00XD

AD-812 373/95T NTIS Prices: PC A03/MF A01

The Effect of Temperature and Confining Pressure on Fluid Flow Properties of Consolidated Rocks

Stanford Univ., Calif. Stanford Geothermal Program, National Science Foundation, Washington, D.C. Research Applied to National Needs.
 Author: Cassé, Francis J.
 DT65/F1 Fld: 81, 97P GRA17708
 Nov 74 134p
 Rept No: SGP-TR-3
 Monitor: NSF/RA/N-74/328

Abstract: Recent work on the effect of temperature on relative permeability suggested that absolute permeability was also a temperature dependent property of rocks. Equipment originally designed to perform dynamic displacements through consolidated sandstone samples was modified and used to measure absolute permeability under conditions of elevated temperature and overburden pressure. Whenever a temperature dependence was evidenced, the combined effect of pure mechanical stresses and thermally induced stresses was studied. The effect of temperature on gas slippage and turbulence coefficient was also analyzed.

Descriptors: Geothermal prospecting. Rock mechanics. Fluid flow. Rock properties. Sandstones. Permeability. Viscosity. Flow rate. Rocks. Numerical analysis. Tables(Data). Statistical data

Identifiers: NTISNSFRA

PB-282 732/151 NTIS Prices: PC A07/MF A01

Airfield Pavement Evaluation, Usanas Whidbey Island and Ushnell Coupeville, Washington

Naval Civil Engineering Lab Port Huenele Calif (248 150)

Final rept. Aug 66-Sep 67
 Author: (Ambiotte, D. J.; Chamberlin, W. H.
 DT52K3 Fld: 1E, 11B d7708
 Oct 67 271p
 Rept No: NCEL-TN-939
 Project: 125N
 Monitor: 18
 Distribution limitation now removed.

Abstract: An evaluation of the pavements at U. S. Naval Air Station Whidbey Island and U. S. Naval Outlying Field Coupeville, Washington is presented with the allowable gross load capacities of the runways, taxiways, and parking aprons for single, dual, single-tandem, and dual-tandem wheel assembly aircraft. Information is also included on the construction history, design pavement sections, climatic data, current aircraft traffic, and pavement and subsurface materials. Results of the evaluation show that asphaltic

concrete Taxiway B and all portland cement concrete pavements with thicknesses of less than 8 inches, including the pavement at NOLF Coupeville, are being overlaid by some aircraft currently operating at the air station. (Author)

Descriptors: Pavements. Landing fields. Naval shore facilities. Landing fields. Air traffic. Asphalt. Cements. Concrete. Pavements. Soil mechanics. Climate. Construction materials. Statistical mechanics. Mechanical properties. Loads(Forces). Runways. Air traffic control terminal areas. Aircraft landings. Landing gear. Washington(State)

Identifiers: NTISDDDXD

AD 826 363/45T NTIS Prices: PC A12/MF A01

Detail Survey of Riverine Environment

Detroit Univ Mich Dept of Civil Engineering (402 845)
 Author: Lassaline, David M.; Sloss, David A. Jr.; Baker, Warren J.; Miranda, Constantio X. C. F.
 DT025K2 Fld: 8H d7704

Mar 67 150p

Contract: DA-20-113-MWC-09099(T)
 Monitor: TACOM-TR-10002
 Distribution limitation now removed.

Abstract: A survey was made along the Black and the Huron Rivers in southern Michigan to determine the character and magnitude of the riverine environment. This was a pilot study to assess the feasibility of intensive riverine surveys. Significant factors, and methods to collect the data. Eighty-two sites were surveyed. Survey data concerning cross-sections, soil properties and strengths, vegetation characteristics, and conditions along the channel bottom, is included in the report. Methods for gathering the data, types of data gathered, analysis, conclusions, and recommendations for future survey techniques are discussed. (Author)

Descriptors: Rivers. Hydrographic surveying. River currents. Soils. Plants(Rotary). Soil mechanics. Statistical analysis. Amphibious operations. Michigan. Feasibility studies

Identifiers: Banks(Waterways). Rivers. River basins. River crossings. NTISDDDXD

AD-844 066/15T NTIS Prices: PC A08/MF A01

DIALOG File# NTIS - 64-82/1ss20 (Copr. NTIS) (Item 26 of 148) User 5208 1sep82

Airfield Pavement Evaluation, NAAS Fallon, Nevada

Naval Civil Engineering Lab Port Hueme Calif (218 150)

Technical note Sep 67-Mar 68

AUTHOR: Lambotte, D. J.; Brownie, R. B.

D027413 Fld: 1E, 13B d7702

Nov 68 273p

Rept No: NCEL-TN-997

Project: NAVFAC-125U

Monitor: 18

Distribution limitation now removed.

Abstract: The evaluation of the pavement at the U. S. Naval Auxiliary Air Station, Fallon, Nevada is presented with the allowable gross load capacities of the runways, taxiways, hardstands, and parking aprons for single, dual, single-tandem, and dual-tandem wheel assembly aircraft. (Author)

Descriptors: (Naval air stations, Landing fields), (Pavements, Loads(Forces)), Runways, Reinforced concrete, Asphalt, Traffic, Tractability, Soil mechanics, Statistical analysis, Pictures, Nevada

Identifiers: Evaluation, Graphs(Charts), NTISDDDXD

AD-845 177/55T NTIS Prices: PC A12/MF A01

The Microstructure of Loess and Its Relationship to Engineering Properties

Air Force Weapons Lab Kirtland AFB N Mex (013 150)

Technical rept, May 68-Feb 69

AUTHOR: Matalucci, Rudolph V.

C767284 Fld: 8M d7625

Jun 70 157p

Rept No: AFWL-TR-69-168

Project: AF-921A

Task: 921A06

Monitor: 18

Distribution limitation now removed.

Abstract: The microstructure of a loessial soil in an attempt to correlate structural or fabric anisotropies with variations in shear strength is examined. Oriented thin sections of undisturbed loess samples were prepared and measurements were made directly on photomicrographs to determine the degree of preferred orientation of silt grains. The overall effect of microstructure and grain orientation on strength properties was evaluated by direct shear and triaxial compression tests. Significant grain orientation was found in both horizontal and vertical planes of undisturbed loess samples. Preferred grain orientation and imbrication conformed to postulated paleowind directions. Silt-sized particles were found to be oriented

parallel with the depositing wind current and imbricated in conformity with established criteria of sedimentation. The orientation of silt grains in the material influenced the directional shear strength considerably. A significant reduction of shear strength was found where specimens were stressed parallel to the plane of preferred grain orientation and imbrication. Microstructural anisotropies in Vicksburg loess also reflected definite variation in shear strength as determined by triaxial compression tests. (Author)

Descriptors: (Soils, Microstructure), Shear stresses, Compressive properties, Site selection, Foundations(Structures), Minerals, Chemical analysis, Particle size, Statistical analysis, Flexural strength, Silt, Failure(Mechanics), Engineering geology, Soil mechanics, Military facilities, New Mexico

Identifiers: Loess, Soil analysis, Triaxial tests, NTISDDDXD

AD-871 569/OST NTIS Prices: PC A08/MF A01

DIALOG File: NTIS - 64-82/Iss20 (Copr. NTIS) (Item 28 of 148) User 5208 1sep82 2100

The Influence of Soil and Rock Properties on the Dimensions of Explosion-Produced Craters

Texas A and M Research Foundation College Station (347 320)

Technical rept. Feb 70-Oct 71

AUTHOR: Dillon, Larry A.

C730711 Fld: 19D, 18C d7622

Feb 72 17ip

Contract: F29601-70-C-0032

Project: AF-5710, DNA-NMER-SA-102

Monitor: AFWL-TR-71-144

Distribution limitation now removed.

Abstract: Analysis of data from published cratering experiments shows the effects of soil and rock properties on the apparent dimensions of explosion produced craters. By regression analysis, using bell shaped curves, prediction formulas were developed for the apparent crater radius, depth, and volume as a function of charge weight and depth of burst for eight different types of materials. The bell curves were normalized using material properties and prediction equations were generated using all the data. These general equations were then studied to determine the specific effects of the material properties on resultant apparent crater dimensions. Material properties are highly important in determining the size of explosion-produced craters.

Descriptors: (*Cratering, *Nuclear explosions), Mathematical models, Rock, Soils, Engineering geology, Computer programs, Regression analysis, Predictions, Statistical distributions, Explosives, Model theory, Seismic waves, Velocity, Guided missile sites, Surface burst, Underground explosions, Density, Weight, Moisture, Vaporization, Volume, Soil mechanics, Mechanical properties, Shear stresses, Experimental data, Structural properties, Compacting

Identifiers: Depth, Rock mechanics, Saturation, Specific gravity, Yield(Nuclear explosions), NTISD00XD

AD-891 964/957 NTIS Prices: PC 408/MF A01

Multiple-Wheel Heavy Gear Load Pavement Tests, Volume III, Part B. Presentation and Initial Analysis of Stress-Strain Deflection and Vibratory Measurements, Data and Analysis

Army Engineer Waterways Experiment Station Vicksburg Miss (038 100)

Technical rept. 1 Jan 68-1 Aug 71

AUTHOR: Leubetter, Richard H.; Rice, John L.

C730204 Fld: 1E, 13R, 20K d7622

Nov 71 547p

Project: AF-5224, FAA-ER-450-034A

Task: 522404

Monitor: AFWL-TR-70-113 Vol-3-Pt-B

See also Volume 3, Part A, AD-890 799L.
Distribution limitation now removed.

Abstract: Flexible and rigid pavement test sections were constructed and tested to gain information on pavement and soil behavior under large aircraft loadings. These test sections incorporated instrumentation structures designed to determine the response of the pavement structures of static, dynamic (slowly moving), and vibratory loads and to traffic by full prototype loadings. This volume covers data reduction, analysis, and the findings of the instrumentation and vibratory testing programs; Appendixes A and B contain details of instrumentation measurements for flexible and rigid pavements, respectively. (Author)

Descriptors: (*Runways, Loads(forces)), (*Aircraft, Weight), Pavements, Soil mechanics, Stresses, Strain(Mechanics), Deflection, Statistical data

Identifiers: Flexible pavements, Multiple wheel loading, NTISD00XD

AD-890 780/057 NTIS Prices: PC A23/MF A01

The Behavior of Statistically Heterogeneous Excavated Earth Slopes

Auburn Univ., Ala. Dept. of Civil Engineering. Federal Highway Administration, Washington, D.C. Alabama State Highway Dept., Montgomery. Bureau of Research and Development.

Supplemental rept. Dec 72-Mar 74 (Final)

AUTHOR: Ramey, George E.

C4505B2 FID: 08M, 13B, 500, 50A GRA17517

Jun 74 181p

Rept No: HPR-67-8

Monitor: 18

See also PB-224 916. Prepared in cooperation with Alabama State Highway Dept., Montgomery. Bureau of Research and Development.

Abstract: The computer program which was originally developed for evaluating the behavior of earth slopes has been modified, extended, and further tested and documented. The program can now handle soil excavation problems, embankment problems, and in-plane elasticity problems. The constituent materials in each of these problem types may be layered in horizontal layers and taken as deterministic or statistically heterogeneous. The program uses an incremental procedure in the simulation of earthwork excavation or filling and thereby solves nonlinear problems in a piecewise linear manner.

Descriptors: *Highways, *Slopes, *Revetments, *Soil mechanics, Soil properties, Computerized simulation, Computer programs, Alabama, FORTRAN

Identifiers: Finite element analysis, DOT/48Z/BA, DOT/4CZ/CA, FORTRAN 4 programming language, NTISD01FHA

PB-241 917/45T NTIS Prices: PC A09/MF A01

Analysis of Large Scale Non-Coal Underground Mining Methods

Dravo Corp., Pittsburgh, Pa. Eastern Construction Div. Bureau of Mines, Washington, D.C.

Summary rept. 30 Jun 72-15 Jan 74.

C4193G3 FID: RI, 48A, 500 GRA17422

Jan 74 581p

Contract: 50122059

Monitor: BUMines OFR-36-74

Abstract: This report identifies problem areas requiring research, identifies potential innovations to improve technology, and provides a basis for anticipating future needs of the large scale noncoal mining industry. It contains statistics on underground mining methods and includes information on the equipment and systems used, and costs and productivity. Particular emphasis is placed on current practices and problems, needed technological improvements.

existing or potential environmental conflicts, and possible modifications that will assist in meeting projected national mineral needs. Current practices for various mining methods, including block caving, room and pillar, vein mining, in situ mining, and variations of these methods are described.

Descriptors: *Underground mining, *Mining engineering, Mineral deposits, Excavating equipment, Rock excavation, Mines(Excavations), Room and pillar mining, Caving mining, Ore sampling, Drill core analysis, Underground supporting, Blasting, Mine shafts, Rock drilling, Slope mining, Rock bolts, Rock mechanics, Requirements, Statistical data

Identifiers: Vein mining, In situ mining, NTISD18M

PB-234 555/1 NTIS Prices: PC A25/MF A01

Continuously Reinforced Concrete Airfield Pavement. Volume 1. Tests on Existing Pavements and Synthesis of Design Methods

Austin Research Engineers Inc Tex (408700)

Final rept. Feb 72-Dec 73

AUTHOR: Treybig, Harvey J.; McCullough, B. Frank; Hudson, W.

Ronald

C3072E4 Fld: 1E, 85A GRA17416

May 74 212p

Contract: F29601-72-C-0057, DOT-FA71WAT-218

Project: AF-683M

Monitor: FAA-RD-74-33-1

Sponsored in part by Army Engineer Waterways Experiment Station, Vicksburg, Miss See also Volume 2, AD-779 953.

Abstract: The report contains support documentation of design methods for continuously reinforced concrete pavements, both overlays and new construction. The experimental investigations of continuously reinforced concrete airfield pavements conducted as part of this research are described and analyzed. The field studies provide experimental validation of the design procedure. The report includes the general outline and analysis for design procedure for both overlay and new pavement. It includes a discussion of material evaluation requirements, handling of aircraft traffic projections for use in fatigue design, and the development of a fatigue curve. The report includes construction recommendations and suggestions based on the current state of knowledge and experience. A comparison is presented of the analyses and observations made on the pavements investigated in the field study. (Modified author abstract)

Descriptors: Pavements, Runways, Test methods, Reinforced concrete, Performance(Engineering), Bituminous coatings, Landing fields, Failure(Mechanics), Nondestructive testing, Coverings, Construction materials, Soil mechanics, Loads(Forces), Deformation, Fracture(Mechanics), Stresses, Deflection, Statistical analysis

Identifiers: Design, Portland cements, Pavement distress, NTISAF

AD-780 511/2 NTIS Prices: PC A10/MF A01

Formation of Elastoplastic Deformations of Soil under Impact Compression

Foreign Technology Div Wright-Patterson AFB Ohio (141600)

AUTHOR: Stavitsker, L. R.

C2994G4 Fld: 8M GRA17415

17 Apr 74 19p

Rpt No: FTD-HF-23-787-74

Project: AF-1369

Task: 136901

Monitor: 18

Edited trans. of Vsesoyuznogo Simpoziuma po Rasprostraneniye Uprugikh i Uprugo-Plasticheskikh Voln (3rd), Moscow, 1969 Papers, n.p., n.d., p264-276, by Victor Mesenzeff.

Abstract: A method is proposed for calculation stresses and strains in the soil under the effect of impact on its surface, which is based on the theory of propagation of elastoplastic waves in a semi-infinite rod. Based on the obtained data, elastoplastic models have been constructed for certain types of soil which are used for practical calculations. In this work the results of these calculations are compared with the data of impact soil compaction under natural conditions.

Descriptors: Soil mechanics, Stresses, Deformation, Compressive properties, Elastic properties, Strain(Mechanics), Mathematical models, Dynamic loads, Statistical functions, Least squares method, Impact tests, Translations, USSR

Identifiers: NTISAF

AD-779 665/9 NTIS Prices: PC A02/MF A01

Statistical Comparison of the Pulse and Resonance Methods for Determining Elastic Moduli

Bureau of Mines, Washington, D.C. (068 450)

Rept. of investigations

AUTHOR: Inili, Richard E.; Peng, Syd S.

C2813C3 Fld: 8G, 500 GRA17412

Feb 74 29p

Rept No: BuMiner-R1-7831

Monitor: 18

Prepared by Twin Cities Mining Research Center, Minneapolis, Minn.

Abstract: Elastic wave velocities and moduli were determined by both the pulse and resonance methods in a large number of specimens of St. Cloud Gray Granodiorite and Tennessee marble under the same moisture, temperature, and stress environments. Statistical comparisons between the Young's, shear, and bulk moduli and Poisson's ratios obtained independently by the pulse and resonance methods do not give equivalent results in nearly isotropic rock. The amount of difference varies for each modulus with least difference (less than 5 pct) occurring in the shear modulus and greatest difference (as high as 34 pct) in the bulk modulus. (Modified author abstract)

Descriptors: *Modulus of elasticity. *Rock properties. *Rock mechanics. Marble, Comparison. Statistical analysis. Tests
Identifiers: Granodiorite. BM

PB-231 106/6 NTIS Prices: PC A03/MF A01

The Behavior of Statistically Heterogeneous Excavated Earth Slopes

Auburn Univ., Ala. Dept. of Civil Engineering.

Rept. no. 1, Dec 70-Dec 72

AUTHOR: Kraft, Leland M. Jr.; Mukhopadhyay, Unanabrata

C2044C2 Fld: 8M, 13B, 50D, 50A GRA17402

Dec 72 215p

Rept No: IPR-67-A

Monitor: 18

Sponsored in part by Alabama State Highway Dept., Montgomery.

Abstract: The performance of statistically heterogeneous excavated earth slopes has been studied by using the deformations on the slope boundary as a measure of the performance. The pertinent parameters of the study are the angle of the slope, the initial stresses as reflected by the earth pressure at rest, the ratio of the soil stiffness to the soil cohesion, Poisson's ratio, the stability number, the safety factor, and the coefficient of variation of the cohesion. The results are summarized in several graphs showing the quantitative influence of soil heterogeneity, number of

samples, and the definition of failure on the selection of samples, and the definition of failure on the selection of the safety factor for a requisite reliability.

Descriptors: *Highways. *Slopes. *Revetments. *Soil mechanics. Soil properties. Civil engineering. Alabama. Computer programs

Identifiers: FHAPR

PB-224 916/7 NTIS Prices: PC E08/MF A01

Settlement Prediction: A Probabilistic Approach

Massachusetts Inst. of Tech., Cambridge. Dept. of Civil Engineering. (220 010)

Final rept.

AUTHOR: Diaz-Padilla, Jorge; Vanmarcke, Erik H.

C1992C3 Fld: 13M, 8M, 50D, 89D GRA17401

Aug 73 84p

Rept No: R73-40; Soils Pub-325

Grant: NSF-GK-25501

Monitor: 18

Also available as Structures Pub-375. Sponsored in part by National Bureau of Standards, Washington, D.C., and Department of Housing and Urban Development.

Abstract: A probabilistic soil-structure interaction model is developed which yields first-order probabilistic information (i.e., means, standard deviations and correlation coefficients) about the movements of the foundation in terms of prescribed probabilistic input about loads and soil properties. The proposed method is applicable only to linear elastic structures supported on shallow foundations, but bounds are suggested for the means and standard deviations of the differential settlements in the case where settlement-induced stiffness deterioration occurs. The uncertainty of joint displacements and forces imposed on the structure by random deformation of its foundation is also discussed. (Author)

Descriptors: (*Foundations. Settlement(Structural)). (*Soil mechanics. Foundations). Soil pressure. Bearing capacity. Structures. Interactions. Probability theory. Random variables

Identifiers: NSF

PB-225 047/0 NTIS Prices: PC A05/MF A01

DIALOG File# NTIS - 64-82/ISS20 (Copr. NTIS) (Item 37 of 148) User 5208 1sep82

Development of a Terrain Prediction Model for West Germany

Army Materiel Systems Analysis Agency Aberdeen Proving Ground
Md (403910)

Technical memo.

AUTHOR: Salisbury, Neil E.
CIP52J4 Fld: 15D, 8B, 74G, 64A GRA17324

Jun 73 85p

Rept No: AMSAA-TM-168

Project: DA-1-P-765801-MM-11

Task: 1-P-765801-MM-1102

Monitor: 18

Abstract: The report describes in detail the efforts conducted to develop a terrain prediction model for examining vehicle mobility in West Germany. The analyses conducted to develop the model and the results obtained when applying the model to areas of West Germany with known terrain characteristics are discussed in detail. Conclusions are presented about the quality and representativeness of the US Army Engineer Waterways Experiment Station terrain data, the efficacy of the developed model and recommendations as to future efforts in terrain analysis. (Author)

Descriptors: (Terrain intelligence, West Germany), (Vehicles, Mobility), Terrain models, Trafficability, Site selection, Soil mechanics, Hydrology, Statistical data

Identifiers A

AD 768 704/3 NTIS Prices: PC A05/MF A01

Analysis of Field Compaction Data. Report 2: Littleville Dam, Westfield River, Massachusetts

Army Engineer Waterways Experiment Station Vicksburg Miss (

0381001

AUTHOR: Torrey, Victor H. III

COS23D3 Fld 13B, 8M, 60B GRA17308

Dec 70 82p

Rept No: AEWES Misc-Paper-S 70-13

Monitor: 18

Abstract: The report is a review of the materials, specifications, procedures, equipment, and testing pertinent to construction and compaction control of the earth-fill embankment of Littleville Dam, Westfield River, Mass., constructed by the U. S. Army Engineer Division, New England. This report includes summation and analyses of the compaction control data submitted by the division to the U. S. Army Engineer Waterways Experimental Station. Statistical analyses are presented on the variation of fill water content from laboratory optimum water content and the variation of fill dry density from laboratory maximum dry density, based on results of field density sampling in each major zone of the

embankment. The overall compaction control achieved for each major embankment zone is indicated by frequency histograms, cumulative frequency distributions, and various statistical parameters for variation of both water content and density. (Author)

Descriptors: (Dams, Foundations/Structures), (Soil mechanics, Dams), Statistical analysis, Density, Construction materials, Specifications, Moisture, Test methods, Rivers, Massachusetts

Identifiers: Littleville Dam, Westfield River, Earth dams, Embankments, Earth fills

AD-756 196 NTIS Prices: PC A05/MF A01

Multiple-Wheel Heavy Gear Load Pavement Tests. Volume III. Part B. Presentation and Initial Analysis of Stress-Strain Deflection and Vibratory Measurements. Data and Analysis

Army Engineer Waterways Experiment Station, Vicksburg, Miss. (OS8 100)

Technical rept. 1 Jan 68-1 Aug 71
AUTHOR: Ledbetter, Richard H.; Rice, John L.

A5374E4 Fld: 1E, 13B, 51E GRAI7223

Nov 71: 547p

Project: AF 5224, FAA-ER-450-034A

Task: 522404

Monitor: AFML-TR-70-113-Vol-3-Pt-B

See also Volume 3, Part A, AD-779 and Volume 4, AU 890 668.
Distribution Limitation now Removed.

Abstract: Flexible and rigid pavement test sections were constructed and tested to gain information on pavement and soil behavior under large aircraft loadings. These test sections incorporated instrumentation systems designed to determine the response of the pavement structures of static, dynamic (slowly moving), and vibratory loads and to traffic by full prototype loadings. This volume covers data reduction, analysis, and the findings of the instrumentation and vibratory testing programs; Appendices A and B contain details of instrumentation measurements for flexible and rigid pavements, respectively. (Author)

Descriptors: (•Runways, Loading(Mechanics)), Aircraft, Weight, Pavements, Soil mechanics, Stresses, Strain(Mechanics), Deflection, Statistical data

Identifiers: Multiple wheel loading, Flexible pavements

AD-890 780 NTIS Prices: PC E14/MF A01

Soil Stabilization - The Effects of Mixing Conditions, Method of Compaction, and Curing Conditions on the Effective Stress-Strength Behavior of a Stabilized Soil

Massachusetts Inst of Tech Cambridge Soil Mechanics Div (220080)

Phase rept, no. 9 on soil stabilization

AUTHOR: Wissa, Anwar E. Z.; McGilivray, Ross T.; Paniagua, Jose Guillermo

A5092J3 Fld: 8M, 64L GRAI7220

Aug 71 75p

Rept No: R71-34; Soils Pub-287

Contract: DA-22-079-eng-465

Project: DA-1-T-061102-B-52-A

Task: 1-T-061102-B-52-A-01

Monitor: AEWES-CR-3-63-9

See also report dated Jan 70, AD-711 536.

Abstract: The effects of mixing conditions, method of compaction, and curing conditions on the strength behavior of a cement-stabilized clayey silt were investigated using consolidated-undrained triaxial compression tests with pore pressure measurements. The results were analyzed using the Mohr-Coulomb criterion of failure in terms of effective stresses. The results of the testing program showed that the consistency of the soil prior to the addition of cement is the most important factor controlling the mixing quality. The use of a mechanical device for mixing was not found to be inherently inferior to the standard laboratory mixing procedure. (Author)

Descriptors: (•Silt, Soil mechanics), (•Soils, Stabilization), Clay, Compressive properties, Shear stresses, Density, Strain(Mechanics), Pressure, Water, Statistical data, Mixtures, Aging(Materials), Cements

Identifiers: •Soil stabilization, Portland cements, Pore pressure

AD-747 351 NTIS Prices: PC A04/MF A01

Rational Pavement Evaluation - Review of Present Technology. Volume II

Naval Civil Engineering Lab., Port Hueneme, Calif 1248 150)

Technical rept. Feb 68-Jun 69.

A495411 Fld: IE, 51E GRA17218

May 70 45p

Project: AF 5713

Task: 571324

Monitor: AFVL-TR-69-9-Vol-2

See also AD-864 411. Distribution Limitation now Removed.

Abstract: A detailed research and development plan is described outlining a research program to evolve a rational pavement evaluation procedure. This procedure can be used to determine the load rating of airfield pavements to enable establishment of aircraft assignments and allowable gross aircraft loads for military airfields. The report outlines four areas of research: structural analysis of pavements, engineering properties of paving materials, pavement mechanics, and aircraft operational characteristics. Work unit statements are presented which describe the scope and objective of the research considered necessary to develop a provisional pavement evaluation procedure. This initial research will require a development period of 3 years (Author)

Descriptors: (Landing fields, Pavements), (Pavements, Reviews), Statistical analysis, Structural properties, Soil mechanics, Construction materials, Asphalt, Reinforced concrete, Cracks, Surface roughness, Reliability, Reports

AD-872 662 NTIS Prices PC E02/MF A01

Statistical Relationships between Geotechnical Properties of Gulf of Mexico Sediments

Texas A and M Univ College Station (347350)

AUTHOR: Bryant, William R.; Trabant, Peter K.

A494102 Fld: BU, 8M, 7811 GRA17218

1972 6p

Rept No: Contrib-491

Contract N00014-68-A-0308, NGA-2-35213

Prepared for presentation at the Offshore Technology Conference (4th annual), Houston, Tex., May 1-3, 1972. Paper no. OTC-1654.

Abstract: The design of adequate foundations for offshore installations, of all natures, requires a knowledge of the engineering properties of the sediments from the first dozen meters below the ocean floor. This study presents the profiles of shear strength, water content and bulk (wet) density to a depth of 12 meters for eighty cores retrieved from all provinces of the Gulf of Mexico. (Author)

Descriptors: (Mexico Gulf, Sedimentation), (Ocean bottom sampling, Mexico Gulf), Depth finding, Soil mechanics, Density, Interfaces

Identifiers: Offshore structures

AD-746 139 NTIS Prices PC A02/MF A01

Statistical Characteristics of Equipment for Simultaneous Working Soil and Seeding (Statisticheskie Kharakteristiki Agregata dlya Sovmeshchenoi Obrabotki Pochvy i Poseva)

National Tillage Machinery Lab., Auburn, Ala.

AUTHOR: Doganovskii, M. G.; Klein, V. F.; Enekeev, V. G.

A4792F4 Fld: 2C, 52C GRA17216

8 Jun 72 6p

Rept No. NTML-WRG-266

Trans. of Mekhanizatsiya i Elektrifikatsiya Sotsialisticheskogo Sel'skogo Khozyaistva (USSR) nll p9-10 1971, by William R. Gill

Abstract: Statistical analysis of the draft force of a KPPA-2.8 combined tiller-planter showed that there was less than 5 percent variation when the machine operated in stable conditions. This is lower than when all operations are conducted separately. In that case the variation increases several times over the 'once over' operation. The combined machine creates improved agrotechnical conditions and increases in yields. (Author)

Descriptors: (Soils, Interactions), (Agricultural machinery, Soil mechanics), Stress analysis, Loads(forces), Statistical analysis, Translation, USSR

Identifiers: KPPA-2

FB-210 367-T NTIS Prices PC A02/MF A01

Tracks Versus Wheels in Soft Soil and Snow

Army Engineer Waterways Experiment Station Vicksburg Miss (038100)
 AUTHOR: Freilich, Dean R.; Janosi, Zoltan J.
 AD/T111 F1d 13F, 8M, 85D GRA17216
 May 64 5/p
 Rept No: AEWFS-Misc Paper 4-651

Abstract: On the basis of arguments advanced and data presented, the following points are concluded: (a) A general solution to the problem of wheels versus tracks is not feasible. (b) Whether to use wheels or tracks is a question which must be answered each time a new vehicle requirement is posed. (c) The following are the principal factors to be considered in making the decision: mission, initial cost, suspension vulnerability, obstacle performance, ridability, fuel economy, maintenance cost, and soft-soil performance. (d) Soft-soil performance is the principal factor that has motivated the selection of tracks over wheels.

Descriptors: (Vehicle wheels, Soils). (Tracked vehicles, Snow). (Soils, Trafficability). Soil mechanics, Performance(Engineering). Correlation techniques, Tires, Weight, Penetration, Particle size, Flexural strength, Terrain Statistical data

Identifiers: Wheeled vehicles, Soft ground mobility, Remote areas

AD-744 222 NTIS Prices: PC A04/MF A01

Dynamic Response of Rectangular Footings in Clay and Sand

Army Engineer Waterways Experiment Station Vicksburg Miss (038100)

Final rept.
 AUTHOR: Taylor, Hugh M. Jr.
 A4521102 F1d 13M, 20K, 60H, 89D GRA17215
 May 72 11p
 Rept No: AEWFS-TR-5-72-G
 Project DNA WNER-SC-2100

Abstract: The static and dynamic behavior of small scale rectangular footings supported on the surface and buried in sand and clay specimens was determined experimentally, and the results are compared herein with dimensionless load displacement relations previously developed for square footings. The effect of shallow depth of burial for rectangular footings in clay was found to be small for the range of parameters investigated, i.e., the nondimensional loading required to produce a given nondimensional displacement is approximately 10 percent greater for buried footings than for surface footings. (Author)

Descriptors: (Supports, Loading(Mechanics)). (Underground structures, Foundations(Structures)). Sand, Clay, Soil mechanics, Deformation, Test methods, Radiography, Statistical data, Nuclear explosion damage, Simulation

Identifiers: Footers, Dynamic loads

AD-743 634 NTIS Prices: PC A06/MF A01

The Probability Nature of Variation of Draft Resistance (Veroyatnostnyy Kharakter Izmeneniya Tyagovogo Soprotivleniya)

National Tillage Machinery Lab., Auburn, Ala.
 AUTHOR: Prikhodko, L. S.; Shakhvazov, D. K.; Shchupak, P. L.; Kiselgof, Yu. Z.; Tomenko, M. P.
 A435384 F1d 2C, 52C GRA17212
 22 Dec 71 7p
 Rept No: NTML-WRG-258

Trans. of Mekhanizatsiya i Elektrifikatsiya Sotsialisticheskogo Seiskogo Khozyaistva (USSR) n7 p46-48 1971, by William R. Gill.

Abstract: Analysis was made of the variation of draft resistance during a number of tillage operations. Samples of 1000, 2000, 3000, 4000, and 5000 measurements were on 4000 m test sections. Readings were made every .05 sec. and when the number of samples exceeded 3000 there was a normal distribution. Limits of draft variation for the various tillage tools ($P = .99$) were: cultivator 290 to 1260 kg, disk tiller 0 to 1130 kg, harrow 200 to 1270 kg, seeder 770 to 2030 kg, and plows 1750 to 3930 kg. (Author)

Descriptors: (Agricultural machinery, Soil mechanics), loads(Forces), Probability, Soils, Cutting tools, Plows, Rakes, Planting, Seeds, Statistical analysis, Translations, USSR

Identifiers: Tillage tools

PB-209 079-1 NTIS Prices: PC A02/MF A01

Behavior of Axially Loaded Drilled Shafts in Beaumont Clay. Part Three. Field Tests

Texas Univ., Austin. Center for Highway Research. (388 101)

Research rept.

AUTHOR O'Neill, Michael W.; Reese, Lydon C.

A414114 Fld 8G, 12B, 64L, 60F GRA17210

Dec 70 206p

Rept No. RR-89-8-Pt-3

Project HD-3-5-65-89

See also PB-207 859.

Abstract: The report is part three of the eighth in a series. The principal aim is to describe the results of axial load tests of full scale, instrumented drilled shafts in the Beaumont clay formation in Houston, Texas. The tests were conducted to measure side and base stresses in cylindrical and underreamed shafts, constructed by both wet and dry procedures. Part three describes the field tests procedures and presents the detailed results of the tests.

Descriptors: (-Clays, -Bearing strength), (-Foundations, -Soil mechanics), Field tests, Cylindrical bodies, Axial stress, Soil mechanics, Moisture Content, Excavation, Failure, Shafts, Problem solving, Structural design, Mathematical prediction, Statistical analysis, Instruments, Texas

Identifiers: Beaumont clay, Houston(Texas)

PB-207 858 NTIS Prices PC A10/MF A01

Pa Mong Stage One Feasibility Report. Appendix IV. Geology. Volume I

Bureau of Reclamation, Washington, D. C. (Okr 950)

A403710 Fld 13B, 8G, 60B, 64F GRA17209

1970 271p

Monitor TA/OST-AN-70-14-4

See also Appendix 3, PB-207 605 and Appendix 4, Volume 2, Part 1, PB-207 607.

Abstract: The Appendix contains the geologic supporting data for the Pa Mong Stage I report. These data are largely the subsurface and surface information on foundation and construction materials obtained for use in the preparation of design and cost estimates of engineering structures. It also contains general geologic data relevant to the water holding capability of the reservoir and geologic data related to design and construction problems anticipated during the development of the project. This volume of the Appendix contains the text and illustrative data. (Author)

Descriptors: (-River basin development, Engineering geology), (-Engineering geology, Developing countries), (-Dams, Engineering geology), Geomorphology, Rocks, Economic geology.

Ground water, Minerals, Seismology, Soil mechanics, Statistical data, Laos, Thailand, Maps

Identifiers: *Pa Mong project, Mekong River

PB-207 606 NTIS Prices: PC A12/MF A01

Creep Fracture in Rock in Uniaxial Compression

Utah Univ Salt Lake City Dept of Mechanical Engineering (402440)

Final rept., 29 Jul 70-31 Oct 71

AUTHOR: Wawersik, Wolfgang R.; Brown, Wayne S

A3802K1 Fld 8G, 64F GRA17208

Dec 71 93p

Rept No: UTEC-ME-71-242

Contract: HD110054, ARPA Order-1579

Project: ARPA OF10

Abstract: Three rock types, a granite, a sandstone and a marble, were tested in uniaxial compression to assess the time dependent properties of brittle rocks at stress levels exceeding half the uniaxial compressive strength. Specimens were tested in quasi-static tests and in creep and differential creep experiments at room temperature. The effect of (partial) pore water pressure was considered by comparing air-dried and water-saturated samples. Particular mathematical descriptions of time dependent deformations were derived from creep and differential creep tests. (Author)

Descriptors: (-Rock(Geology), Fracture(Mechanics)) Creep, Compressive properties, Brittleness, Pressure, Sandstone, Metamorphic rock, Granite, Failure(Mechanics), Porosity, Deformation, Shear stresses, Statistical data, Strain(Mechanics)

Identifiers: *Rock mechanics

AD-738 002 NTIS Prices: PC A05/MF A01

Dynamic Foundation Investigations TAA-2A Radar Site Cape Kennedy, Florida

Army Engineer Waterways Experiment Station Vicksburg Miss (038100)
 AUTHOR Ballard, R. J. Jr.; Casagrande, D. R.
 A4852x4 Fld 8M, 64L GRAI7208
 Feb 67 25p
 Rept No AEWES-Misc-Paper-4-878

Abstract The results of vibratory tests performed at the proposed site of the TAA-2A radar facility at Cape Kennedy, Florida, indicate that shear modulus values increased from about 2700 psi near the surface to about 11,000 psi at a depth of 18 ft. Compression moduli ranged from 7500 to 28,000 psi at corresponding depths. Poisson's ratio for the upper 6 ft of soil material was about 0.40, and below 6 ft, about 0.48. Conventional and dynamic laboratory tests were also performed on soil samples obtained at the test site. These tests supplemented the in situ investigation and yielded results consistent with those of the field tests. (Author)

Descriptors (*Soil mechanics, Florida). (*Foundations(Structures). Soils). Compressive properties. Elasticity. Loading(Mechanics). Vibration. Sand. Clay. Sandstone. Classification. Moisture. Density. Structural properties. Tests. Statistical data. Radar equipment

Identifiers *Cape Kennedy(Florida)

AD 737 765 NTIS Prices PC A02/MF A01

Statistical Evaluation of Cone-Penetration-Test Data

Army Engineer Waterways Experiment Station Vicksburg Miss (038100)
 AUTHOR Poplin, J. K.
 A3681B1 Fld 8M, 64L, 60H GRAI7206
 Nov 65 46p
 Rept No: AEWES-Misc-Paper-3-749
 Project: DA-T-022601-A-091
 Task: 1-T-022601-A-09102

Abstract The objectives of the evaluation tests were (a) To determine the statistical reliability of Cone-Penetration Resistance (CPR) data; (b) To investigate the boundary and interaction effects of penetration within the mobile-cart specimen; (c) To determine the influence of a static plate-bearing test on neighboring CPR tests; (d) To evaluate the relative uniformity of the prepared specimen.

Descriptors (*Soil mechanics, Test methods). Statistical analysis. Foundations(Structures). Shelters. Model test.

Identifiers Cone penetration tests. Evaluation

AD-736 121 NTIS Prices: PC A03/MF A01

Nuclear Metering of Soil Density and Moisture Content at Depth: Analysis of Measurements, Determination of Errors, and Evaluation of Ability to detect Temporal Variations in Soil Properties

Naval Civil Engineering Lab Port Hueneme Calif (248150)

Final rept. Sep 68-Sep 69
 AUTHOR: True, D. G.
 A3592F1 Fld 8M, 14B, 14D, 64L, 73D GRAI7205
 Oct 71 73p
 Rept No. NCEL-TR-742
 Project: YF38-534-002-01-002

Abstract: A study was conducted of the potential applicability of nuclear measuring techniques for determining soil density and moisture content at depth, and changes in these properties, for Navy civil engineering purposes. Measurements were obtained under two different types of engineering requirement to assess measurement capabilities: (1) in base material and subgrade soil beneath the pavements at five airfields, to detect long term variations; (2) in hydraulically placed foundation soils at two construction sites, both before and after densification of the soil was attempted by driving compaction piles, to detect changes due to the densification effort. The data were analyzed and statistical procedures were developed to determine the magnitudes of measurement error. Measurement errors were relatively low compared with the measured temporal variations in the soil properties at the soil densification sites, but were so large as to obscure a large portion of low-level, long-term changes occurring in the pavement subgrades. (Author)

Descriptors (*Soil mechanics, *Radiation measurement systems). Density. Moisture. Landing fields. Errors. Statistical Analysis. Probes

Identifiers Soil water. Soil properties. Pavement basis

AD-735 448 NTIS Prices: PC A04/MF A01

Strain Distribution Around Underground Openings. Statistical Relationships for Certain Rock Properties

Purdue Univ Lafayette Ind School of Civil Engineering (291950)

Technical rept.

AUTHOR: Judd, William R.; Perloff, William H.
A358511 Fld. 8G, 20K, 13B, 64L GRA17205
Oct 71 197p
Rept No: TR-6
Contract DACA73-GR-C-0002
See also technical rept. no. 5, AD-723 532.

Abstract: Comparison is made between all possible pairs of 19 different physicomaterial properties of rocks. Useful correlation coefficients for several pairs of properties were identified. The analysis was based upon some 1,000 sets of data on 25 different rock types and included 5 different field tests and 14 different laboratory tests. The only field tests useful for predicting a laboratory test value were the propagation velocity of a longitudinal wave which gave an r to the 2nd power of 0.63 when compared to unconfined compressive strength, and the Schmidt hammer values which appeared to have reasonable correlations with wave velocities. Static shear modulus and statistically and dynamically derived moduli on laboratory specimens. (Author)

Descriptors: (Rock(Geology)). Structural properties. (Data processing systems. Rock(Geology)). Strain(Mechanics). Compressive properties. Mathematical prediction. Deformation. Underground structures. Elasticity. Correlation techniques. Statistical analysis. Shear stresses. Poisson ratio. Hardness. Porosity. Tensile properties

Identifiers: Rock mechanics. Underground openings. Finite element analysis

AD-735 376 NTIS Price: PC A09/MF A01

Performance of Soils under Track Loads. Report 2. Prediction of Track Pull Performance in a Desert Sand

Army Engineer Waterways Experiment Station Vicksburg Miss (038100)

Technical rept.

AUTHOR: Turnage, Gerald W
A338403 Fld. 8M, 64L GRA17203
Nov 71 92p
Rept No: AEWES-TR-M-71-5-2
Project: DA-1-T-062103-A-046
Task: 1-T-062103-A-04603
See also Report 1, AD-728 496

Abstract: A first-generation, quantitative description of

straight-line track pull performance in a desert sand was sought by laboratory tests of a model track of 16 variables selected to provide a comprehensive description of the track-sand system. Analysis of three Plankett-Burman (statistical) test designs showed four to merit initial study. (Author)

Descriptors: (Soils. Loading(Mechanics)). (Tracked vehicles. Soil mechanics). Mobility. Trafficability. Performance(Engineering). Deformation. Penetration. Interactions. Flexural strength. Test facilities. Test methods. Deserts. Model tests. Statistical analysis

Identifiers: Soil track systems

AD-733 926 NTIS Price: PC A05/MF A01

Research in Ground Support and Its Evaluation for Coordination with System Analysis in Rapid Excavation

Jacobs Associates San Francisco Calif (190360)

Seal-annual technical rept. 26 Feb-26 Aug 71
 AUTHOR: Wickham, George E.; Tiedemann, Henry R.
 A317514 F1d 13B, 8G, 6OH, 64L GRA17124
 26 Sep 71 29p
 Contract H0210038, ARPA Order-1579
 Project ARPA-1F10

Abstract: A method of ground support requirement prediction for rock tunnels is described. This prediction is based on the investigation of the pre-bid geology of case studies of 32 tunnel projects. A method of evaluating a rock mass structurally has been developed based on the interrelationship of 7 geologic factors. The relative evaluation of vectors are based on the geologic data obtained from the case studies. The method, called Rock Structure Rating, is a numerical value that can vary on a scale of 0 to 100. The actual ground support provided in the case studies has been evaluated by comparing the supports to a common datum. This method is called the Support Index and also varies numerically from 0 to 100. The method for correlating these factors is discussed, both as a means for refining the values of the Rock Structure Rating and for future use in predicting support requirements based on pre-bid geological investigations. (Author)

Descriptors: (Underground structures, Supports), (Rock(Geology), Mechanical properties), Construction, Structural properties, Economic geology, Correlation techniques, Safety, Engineering geology, Costs, Statistical data, Numerical analysis

Identifiers: *Excavation, Rock mechanics

AD-732 029 NTIS Prices: PC A03/MF A01

Penetration in Granite by Shaped Charge Liners of Various Metals

Missouri Univ Rolla Rock Mechanics and Explosives Research Center (405518)

Final rept.
 AUTHOR: Rollins, R. R.; Clark, G. B.; Kalla, H. N.
 A2935G2 F1d 8G, 19A, 19D, 64L, 79E GRA17121
 Apr 71 60p
 Rept No RMFRC-18-70-13
 Contract DACA45-69-C-0087
 Prepared in cooperation with DuPont DeMours (E. I.) Co., Inc., Wilmington, Del.

Abstract: This report describes efforts to determine the penetrability of shaped charge jets into granite utilizing

metallic liners and composition C-4 as the high explosive. While shaped charges have found extensive use in military applications, industrial uses are limited to oil well casing perforations, furnace tapping, and linear metal cutting charges.

Descriptors: (*Granite, Penetration), (*Shaped charges, Cavity liners), Shaped charge jets, Detonation waves, Stagnation point, Aluminum alloys, Brass, Maraging steels, Copper alloys, Microstructure, Statistical data

Identifiers: Aluminum alloy 2011, Aluminum alloy 7075, Monel

AD-729 948 NTIS Prices: PC A04/MF A01

Trafficability of Soils. Supplement No. 18: Development of Revised Mobility Index Formula for Self-Propelled Wheeled Vehicles in Fine-Grained Soils

Army Engineer Waterways Experiment Station, Vicksburg, Miss. (Q38 100)
 AUTHOR: Kennedy, James G.; Rush, Edgar S.
 A2694H3 F1d 13F, 8L, 74F, 64K GRA17118
 Mar 68 90p
 Rept No: AEMES-TM-3-240-18-Suppl
 Project: DA-1-V-021701-A-046
 Task: 1-V-O-21701-A-046-02
 Distribution Limitation now Removed.

Abstract: Main test purposes were to obtain data to determine experimentally 50-pass vehicle cone indexes for some untested vehicles and from these and other test results develop an mobility indexes formula for a wide range of vehicle weights and tire sizes. (Author)

Descriptors: (*Soils, Trafficability), Mobility, Indexes, Vehicles, Particle size, Soil mechanics, Tracked vehicles, Military requirements, Tires, Weight, Classification, Statistical analysis, Regression analysis, Mathematical prediction, Equations, Tables, Errors

Identifiers: *Mobility index formula

AD-832 912 NTIS Prices: PC A05/MF A01

Investigation of the Strength Properties of Frozen Soils. Fiscal Year 1952. Report of Investigations. Volume 1

Arctic Construction and Frost Effects Lab Boston Mass (032750)

Draft rept.
A237514 Fld. 8M, 8L, 64L, 64K GRA17115
Jun 53 135p
Rept No. ACFEL-TR-44-Vol-1
Project DA-86607003
See also Volume 2, AD-712 651

Abstract: The report contains the data obtained during the second consecutive year of investigational laboratory work on the strength properties of frozen soils. It is a continuation and extension of the investigational program initiated in Fiscal Year 1951 and reported fully in SIPRE Report 8. 'Investigation of Description, Classification, and Strength Properties of Frozen Soils, Fiscal Year 1951', dated June 1952. (Author)

Descriptors: (*Soils, Freezing). (*Soil mechanics, Test methods). Flexural strength, Compressive properties, Shear stresses, Elasticity, Clay, Gravel, Sand, Silt, Statistical data

Identifiers: *Frozen soils

AD-725 156 NTIS Prices PC A07/MF A01

Effect of Organic Additives on Impregnated Diamond Drilling

Bureau of Mines, Washington, D.C. (068 450)

Rept. of Investigations
AUTHOR Streibig, K. C.; Aly Solim, A.; Schultz, C. W
A2222C2 Fld fig. 81, 131, 71M, 641 GRA17113
Mar 71 36p
Rept No BM-R1-7494

Abstract: The effect of some organic additives in diamond drilling of quartzite was investigated in the laboratory with a drill instrumented to measure the rate of penetration, the thrust, and the torque and to record each as a function of the distance drilled. A statistical plan was followed throughout the investigation, and an equation representing the bit performance was derived from the mathematical theory of reliability. The coefficient of friction in drilling increased with the use of additives, although the wear coefficient decreased. The decrease in wear associated with an increase in energy per unit volume consumed and the increase in penetration rate resulted in a net decrease in the cost per foot of drilling. A hypothesis explaining the effects achieved with the additives is given. (Author)

Descriptors: (*Additives, *Diamond drilling), (*Quartzites, Diamond drilling), Friction, Crack initiation, Diamond drills, Penetration, Statistical analysis, Wear inhibitors, Detergents, Glycerol, Ethylene glycol, Water, Rock mechanics, Cooling, Efficiency, Interfacial tension

PR-198 826 NTIS Prices: PC A03/MF A01

Influence of Lubricants and Polymer Coatings on Penetration of Oceanographic Coring Tools

Naval Postgraduate School, Monterey, Calif. (251 450)

Master's thesis.
AUTHOR Erchul, Ronald Anton
A2214E2 Fld 11C, 11H, 78F GRA17113
Dec 68 59p
Distribution Limitation now Removed

Abstract: The friction developed on the inner and outer faces of oceanographic coring tubes tends to decrease penetration and gross recovered length and to increase sample disturbance. An effort was made to decrease this friction through use of lubricants and polymer coatings and to thereby increase the penetration of smooth steel surfaces into fine grained sediments. Tests were conducted in the laboratory using steel plates and an Atwood test apparatus, and at sea using gravity corers. In the laboratory tests the lubricants SIP, CRC, zinc grease, and lithium grease increased penetration 46, 25, 24, and 20 percent respectively. Tests at sea showed that use of SIP lubricant increased corer penetration 18 and 35 percent and gross recovery length of cores 16 percent. Statistical analysis indicated that the above increases were highly significant. Teflon, TEP film, and nylon increased penetration 20 to 30 percent in the laboratory and merit special consideration since these coatings would not contaminate the core sample. (Author)

Descriptors: (*Coatings, Machine tools), (*Drilling machines, Lubricants), Polymers, Friction, Penetration, Surfaces, Pipes, Halocarbon plastics, Statistical analysis, Nylon, Sedimentation, Contamination, Ocean bottom sampling, Greases, Soil mechanics, Theses, Shear stresses, Oceanographic equipment

Identifiers: Gravity corers, *Coring

AD-R45 189 NTIS Prices: PC A04/MF A01

Strain Distribution around Underground Openings. Comparison between Predicted and Measured Displacements

Ru due Univ Lafayette Ind School of Civil Engineering (291950)

Technical rept.

AUTHOR: Judd, William R.; Perloff, William H.

A219412 Fld: 8G, 20K, 13B, 64L GRA17113

Mar 71 120p

Rept No: TR-5

Contract: DACA73-68-C-0002

See also Technical rept. no. 4, AD-706 936.

Abstract: The objective of this research was to establish whether existing theoretical methods could be used to predict the amount of displacement that would occur around an underground opening during or soon after the excavation process. The first step of the study selected a finite element method of analysis based upon an elastic continuum as the most promising theoretical method. The accuracy of the predictions was analyzed by comparison with in-situ measurements of strain around as-built openings. For three of the five openings analyzed, three appeared to present no useful correlation between the magnitudes of the predicted and measured displacements; for two of the openings (Morrow Point and Green River), 75% of the cases where the displacements were in the same direction had less than an order of magnitude difference in the amount of the displacement. In general, a finite element method based upon an elastic continuum does not appear to provide an acceptable predictive method except where the rock-system behavior approximates that of an elastic continuum. (Author)

Descriptors: (*Rock(Geology), Structural properties), (*Data processing systems, Rock(Geology)), Strain(Mechanics), Underground structures, Construction, Mathematical prediction, Deformation, Elasticity, Correlation techniques, Statistical analysis, Shear stresses, Mathematical models, Computer programs, Hardness, Tensile properties

Identifiers: *Rock mechanics, *Underground openings, Finite element analysis

AD-723 532 NTIS Prices: PC A06/MF A01

Settlement of a Pipeline on Thawing Permafrost

Brown Univ Providence R I Div of Engineering (065310)

AUTHOR: Palmer, Andrew C.

A210413 Fld: 13B, 8L, 60B, 85B GRA17112

Mar 71 32p

Contract: SD-86

Monitor: ARPA-E77

Abstract: A buried oil pipeline in permafrost will thaw the

frozen soil around it, and will settle as the thawed soil consolidates. Because the amount of ice in the soil varies from point to point along the pipe alignment, the settlement will be uneven, and will induce bending in the pipe. Thaw settlement estimates from single boreholes give no information about the possible magnitude of differential settlements, and instead statistical measures of the intensity of fluctuations in thaw settlement have to be used. Alternative sources of the required data are suggested, and two different ways of estimating the effects on the pipe are described, one way being based on random process theory and the other on statistical simulation. The flexural stiffness of the pipe modifies the settlement, and methods of taking this effect into account are explained. (Author)

Descriptors: (*Construction, *Permafrost), (*Pipes, Alignment) *Bending, Networks, Petroleum, Soil mechanics, Melting, Intensity, Underground structures, Construction, Simulation, Statistical processes

Identifiers: *Pipelines

AD-722 673 NTIS Prices: PC A03/MF A01

Investigation of Description, Classification, and Strength Properties of Frozen Soils. Investigational Data Fiscal Year 1951. Volume II. Appendix B

Snow Ice and Permafrost Research Establishment Wilmette Ill (401639)

A201442 Fld: 8M, 8L, 64L, 64K GRA17111

Jun 52 181p

Rept No: SIPRE-8-Vol-2

See also Volume 1, AD-721 745. Also available as PB-112 249.

Abstract: The report contains the results of an exploratory test series with tables which constitutes the initial phase of an investigational program whose purpose is to determine methods of describing and classifying frozen soils and to determine the strength characteristics of frozen soils. (Author)

Descriptors: (*Soils, Freezing), (*Soil mechanics, Graphics), Classification, Identification, Flexural strength, Structural properties, Foundations(Structures), Compressive properties, Shear stresses, Strain(Mechanics), Clay, Silt, Sand, Gravel, Ice, Statistical data, Tables

Identifiers: *Frozen soils, Frost action, Peat, Graphs(Charts)

AD-721 746 NTIS Prices: PC A09/MF A01

Investigation of Description, Classification, and Strength Properties of Frozen Soils. Report of Investigations Fiscal Year 1951. Volume I. With Appendix A

Snow Ice and Permafrost Research Establishment Wilmette Ill (401639)
A2014H1 Fld: 8M, 8L, 64L, 64K GRAI7111
Jun 52 234D
Rept No: SIPRE-8-Vol-1
See also Volume 2, AD-721 746. Also available as PB-112 248.

Abstract: The report presents the results of an exploratory test series which constitutes the initial phase of an investigation program whose purpose is to determine methods of describing and classifying frozen soils and to determine the strength characteristics of frozen soils. The investigation was performed by the Frost Effects Laboratory, New England Division, Corps of Engineers, U.S. Army, for the Snow, Ice and Permafrost Research Establishment, Corps of Engineers, U.S. Army, located at Wilmette, Illinois. (Author)

Descriptors: (-Soils, Freezing), (-Soil mechanics, Reviews), Classification, Identification, Compressive properties, Tensile properties, Flexural strength, Shear stresses, Test facilities, Deformation, Statistical data, Tables

Identifiers: -Frozen soils, Frost action

AD-721 745 NTIS Prices: PC A11/MF A01

A Method for Estimating Strength of Rock Containing Planes of Weakness

Bureau of Mines, Washington, D.C. (068 450)

Rept. of investigations
A1544A1 Fld: 8G, 8I, 64L, 64I USGRDR7105
Nov 70 34P
Rept No: BM-81-7449

Abstract: The report presents a method of utilizing the Coulomb strength criteria for estimating the strength and stability of pillars and pit slopes containing planes of weakness. It is assumed that the Coulomb theory, as a special case of the Mohr envelope, is a satisfactory first approximation of failure in uniaxial compression or triaxial loading with low lateral loads. Accepting this assumption for brittle materials, an expression for the strength decrease of rock pillars containing a plane of weakness or fracture at any angle of orientation is derived. As few as six samples (three solid cores and three fractured cores at a failure-oriented angle) are required for testing uniaxially and triaxially to statistically determine the coefficients of friction and the shear strengths of both the solid rock and the fracture plane and the range of failure angles of the fracture plane.

of either the strength or strength ratios against fracture angles obtained from oriented drill core samples gives a useful first approximation of strength decrease due to fracture. Using the same test conditions for both fractured and unfractured material increases the validity of the tests. (Author)

Descriptors: (-Rock mechanics, -Fracture strength), (-Columns/Supports, Stability), (-Mining, Safety), Failure, Statistical analysis, Triaxial stresses, Loads (Forces), Mathematical prediction, Coring, Limestone, Sandstone

Identifiers: -Mine pillars

PB-196 603 NTIS Prices: PC A03/MF A01

Long Term Overturning Loads on Drilled Shaft Footings

Texas Transportation Inst., College Station.

Research rept.
AUTHOR: Dunlap, Wayne A.; Ivey, Don L.; Smith, Harry L.
A1542K1 Fld: 13M, 60H USGRDR7105
Sep 70 58p
Rept No: RR-105-5F
Project: TII-2-5-67-105
Report on Design of Footings for Minor Service Structures.

Abstract: This report summarizes one part of a three-year study to develop a usable design procedure for drilled shaft footings subjected to all types of overturning loads. The purpose of the field and laboratory long-term loading tests was to determine what values of long-term lateral loads could be safely applied to drilled shaft footings without undue rotation, and also to develop a laboratory creep test which would aid in these predictions. (Author)

Descriptors: (-Footings, Loads (Forces)), Pressure distribution, Soil pressure, Bearing strength, Soil mechanics, Creep, Strength, Static loads, Pitch (Inclination), Statistical analysis

Identifiers: Drilled shaft footings, Overturning loads

PB-196 524 NTIS Prices: PC A04/MF A01

A Dimensional Analysis of the Performance of Pneumatic Tires on Sand

Army Engineer Waterways Experiment Station Vicksburg Miss (038100)
 AUTHOR: Firtag, D. R.
 A144583 Fld 13F, 8M, 79D, 64L USGRDR7104
 Aug 66 20p
 Rept No: AEWES-Misc-Paper-4-836
 Project: DA-1-V-0271701-A-046
 Task 1-V-021701-A-04603

Abstract: The study reported herein had a dual purpose. First, it was intended to determine, for certain specific circumstances, a mathematical relation between the various pertinent tire and soil parameters and the parameters that describe the behavior of the pneumatic tire-soil system. In particular it was desired to identify the role played by the soil in terms of relatively simple measures of the pertinent soil properties. A second purpose was to demonstrate the applicability and usefulness of dimensional analysis in experimental studies of a tire-soil system. 9

Descriptors: (*Tires, Performance(Engineering)), (*Sand, Trafficability), Soil mechanics, Mathematical analysis, Loading(Mechanics), Friction, Interactions, Statistical data

Identifiers: Pneumatic tires

AD-716 341 NTIS Prices PC A02/MF A01

Ultimate Deformations of Building Foundations on Thawing Ground (O Predelnykh Deformatsiykh Osnovaniy Sooruzheniy na Ottaivalushchikh Gruntakh)

Cold Regions Research and Engineering Lab Hanover NH (037100)
 AUTHOR: Usikaylov, V. P.
 A1292F2 Fld 13M, 8L, 60M USGRDR7102
 1960 17p
 Trans. of Nauchno-Issledovatel'skii Institut Osnovaniy i Podzemnykh Sooruzheniy (Gornik Trudov (USSR) n29 p80-88 1956.

Abstract: The report presents a statistical analysis of deformation of various types of construction materials due to extreme temperatures encountered in Arctic regions.

Descriptors: (*Foundations(Structures), Deformation), (*Construction, Arctic regions), Soil mechanics, Freezing, Melting, Permafrost, Construction materials, Statistical data, USSR

Identifiers: Translations

AD 715 079 NTIS Prices PC A02/MF A01

The Effects of Surface Roughness on the Shear Strength of Joints in Rock

Illinois Univ Urbana (175750)
 Final technical rept.
 AUTHOR: Coulson, James Hilton
 A121281 Fld: 8G, 20K, 64L USGRDR7101
 Oct 70 313p
 Contract: DACA45-67-C-0009
 Monitor: WRD-TR-2-70
 Doctoral thesis.

Abstract: The shear strength of a discontinuity, or joint, in a rock mass is derived from two components: (1) the frictional component offered by two flat surfaces sliding relative to one another, plus (2) the geometrical component derived from the necessity of interlocking surface irregularities to be overridden or sheared off as sliding commences. The chief purpose of this investigation has been to determine the manner in which surface preparation affects the frictional component of shear strength. Flat surfaces in basalt, dolomite, limestone, sandstone, siltstone, granite, and schistose gneiss, prepared by lapping with fine no. 600 grit, by lapping with coarse no. 80 grit, and by sandblasting, have been sheared wet and dry under normal pressures from 10 to 1000 psi. To supplement test data from the flat surfaces, tests were also performed on natural joints in granite and siltstone, on joints in granite grouted with neat cement, and along intact bedding in two shales. In all, approximately 1000 shear tests were performed using a high-capacity direct-shear machine designed specifically for this testing program (Author)

Descriptors: (*Rock(Geology), Joints), (*Joints, Shear stresses), Surface roughness, Failure(Mechanics), Friction, Granite, Sandstone, Grout, Cements, Shale, Basalt, Limestone, Test methods, Correlation techniques, Statistical data

Identifiers: *Rock mechanics, Siltstone, Gneiss, *Rock joints

AD-714 244 NTIS Prices: PC A14/MF A01

ESTIMATION OF THE ORIGINAL SHEAR STRENGTH OF DEEP SEA SEDIMENTS FROM ENGINEERING INDEX PROPERTIES

Naval Postgraduate School Monterey Calif (251450)

Author's thesis
AUTHOR: Hoag, Robert Wyman II
A1054H3 Fld 8J, 8M, 64L, 78H USGRDR7023
Sep 70 102P

Abstract: Multiple linear regression techniques were employed in a statistical analysis of data from 114 deep sea cores in order to derive an equation for predicting shear strength from sediment engineering index properties. Water content, depth of burial, liquid limit, and plastic limit proved to be the only factors significantly influencing the strength in these cores. The multiple and individual correlation coefficients between these four parameters and the logarithm of shear relation. Additionally, other regression analysis were conducted to determine a water content prediction equation and to investigate correlations among other sediment properties. Water content is shown to be highly correlated with liquid limit. Ancillary to the above analysis, tests were conducted to determine the degree of reproducibility of original liquid limit values from dried sediment material. (Author)

Descriptors: (-Ocean bottom, Soil mechanics), Regression analysis, Deep water, Shear stresses, Sedimentation, Statistical analysis, Plasticity, Thesis

Identifiers: Atterberg limits, Shear strength, Coring

AD-712 831 CFSII Prices HC A06/MF A01

INVESTIGATION OF THE STRENGTH PROPERTIES OF FROZEN SOILS. FISCAL YEAR 1952. APPENDIX A: INVESTIGATIONAL DATA. VOLUME 2

Arctic Construction and Frost Effects Lab Boston Mass (032750)

Draft rept
A1045K4 Fld 8M, 8L, 64L, 64K USGRDR7023
Jun 53 220p
Rpt No ACCEL-TR 44 Vol-2
Project DA 86602003

Abstract: The report contains tabular data describing the mechanical properties of various types of frozen soils

Descriptors: (-Soils, Freezing), (-Soil mechanics, Freezing), Ice, Water, Clay, Gravel, Sand, Silt, Periodic variations, Compressive properties, Shear stresses, Statistical data.

AD-712 651 CFSII Prices HC A10/MF A01

FROST INVESTIGATIONS. FISCAL YEAR 1951. COLD ROOM STUDIES. VOLUME 2. APPENDIX A: EQUIPMENT AND TEST PROCEDURES. APPENDIX B: INVESTIGATIONAL DATA

Arctic Construction and Frost Effects Lab Boston Mass (032750)

Interim rept, no. 2.
A104504 Fld 8L, 8M, 14B, 64K, 64L USGRDR7023
Jun 51 225p
Rpt No ACCEL-TR-36-Vol-2

Abstract: The report, Volume 2 of 'Cold Room Studies, Second Interim Report of Investigations', includes Appendix A: 'Equipment and Test Procedures', which contains a description of the cold room and equipment and test procedures, and Appendix B: 'Investigational Data', which contains tables of test results, plots of temperature and heave versus time, and water content distribution in each sample before and after testing, for each test series. (Author)

Descriptors: (-Permafrost, Reports), (-Soil mechanics, Test methods), Test equipment, Soils, Statistical data, Landing fields, Pavements, Frost heave, Military requirements

Identifiers: Frost action, Graphs(Charts)

AD-712 623 CFSII Prices HC A10/MF A01

FROST INVESTIGATIONS 1949-1950. SUMMARY TABULATION OF AIRFIELD PAVEMENTS 1943-1949. AT AIR FORCE INSTALLATIONS CONSTRUCTED ON FROST SUSCEPTIBLE SUBGRADES

Arctic Construction and Frost Effects Lab Boston Mass (032750)

Technical rept
A1044F2 Fld 8M, 8L, 1E, 64K, 51E USGRDR7023
Jun 50 57p
Rept No ACCEL-TR-32

Abstract: The report presents a summary tabulation of the pertinent data on pavements, base courses, and subgrades and on traffic histories from twenty-five Air Force bases where the pavement design is affected by frost conditions. The gross plane load evaluations of the pavements during both the normal period, where there is no weakening due to frost melting, and during the frost melting period were determined. Results of pavement condition surveys made at fifteen of the airfields are tabulated and correlated with the pavement evaluations and traffic histories. (Author)

Descriptors: (-Landing fields, Freezing), (-Freezing, Soil mechanics), Tables, Statistical data, Frost heave, Pavements, Water, Ice, Runways, Aircraft landings, Take-off, Trafficability

AD 712 591 CFSII Prices HC A04/MF A01

FROST INVESTIGATIONS 1949-1950. REPORT OF PAVEMENT SURFACE TEMPERATURE TRANSFER STUDY

Arctic Construction and Frost Effects Lab Boston Mass (032750)

A1044C3 Fld 8L, 1E, 20K, 64K, 51E USGRDR7023
Jun 50 35p
Rept No ACCEL TR-31

Abstract: The report presents the results of a study to determine the relationship between the Freezing Indexes computed using mean air temperature and those computed using pavement surface temperature. The study is based on subsurface temperature data available at the Frost Effects Laboratory consisting of periodic subsurface temperature readings throughout a complete normal freezing period from three airfields and limited readings from a fourth airfield. All located in the northern part of the United States. From these readings a factor for modifying the Air Freezing Index is obtained and applied to the theoretical equations, and a correlation made between the observed depth and predicted depth of frost penetration. (Author)

Descriptors: (-Landing fields, Freezing), (-Pavements, Heat transfer), Soil mechanics, Periodic variations, Temperature, Thermocouples, Predictions, Statistical analysis

Identifiers: *Frost penetration

AD-712 570 CFSII Prices: HC A03/MF A01

DATA REPORT OF FROST INVESTIGATIONS 1943 - 1949. VOLUME III. INVESTIGATIONS IN THE GREAT LAKES DIVISION AND MISSOURI RIVER DIVISION

Arctic Construction and Frost Effects Lab Boston Mass (032750)

A1043G4 Fld: 8M, 8L, 1E, 64K, 51E USGRDR7023
Jun 49 465p
Rept No ACCEL-TR-20 Vol-3
See also Volume 2, AD-712 538.
Reference only at DDC after original copies exhausted.

Abstract: The report is a compilation of statistical data obtained as a result of frost investigation performed on various airfields in the midwestern, northwestern United States.

Descriptors: (-Landing fields, Freezing), (-Freezing, Statistical data), Soil mechanics, Soils, Pavements, Frost heave, Water, Ice, Foundations(Structures), Trafficability, Periodic variations, Loading(Mechanics), Sampling, Wisconsin, Michigan, South Dakota, North Dakota, Nebraska, Kansas, Wyoming

Identifiers: *Frost penetration

AD-712 539 CFSII Prices: HC A20/MF A01

DATA REPORT OF FROST INVESTIGATIONS. VOLUME II. INVESTIGATIONS IN THE NEW ENGLAND DIVISION

Arctic Construction and Frost Effects Lab Boston Mass (032750)
A1043G3 Fld: 8M, 8L, 1E, 64K, 51E USGRDR7023
Jun 49 480
Rept No: ACFEL-TR-20-Vol-2
See also Volume 1, AD-712 437 and Volume 3, AD-712 539.
Reference only at DDC after original copies exhausted.

Abstract: The report contains statistical data obtained from frost investigations performed on numerous New England airfields.

Descriptors: (*Landing fields, Freezing), (*Freezing, Statistical data), Soil mechanics, Soils, Pavements, Frost heave, Water, Ice, Foundations (Structures), Trafficability, Periodic variations, Loading (Mechanics), Sampling, Maine, Massachusetts

Identifiers: *Frost penetration

AD-712 538 CFSII Prices: HC A21/MF A01

FROST INVESTIGATION 1946 - 1947. REPORT ON STUDIES OF BASE COURSE TREATMENT TO PREVENT FROST ACTION

Arctic Construction and Frost Effects Lab Boston Mass (032750)
A1042H2 Fld: 8M, 1E, 64K, 51E USGRDR7023
Aug 47 58p
Rept No: ACFEL-TR-11
See also Rept. no. ACFEL-TR-4 dated Jun 46, AD-712 359.

Abstract: The report presents the results of the investigations made since those reported in 'Report on Studies of Base Course Treatment to Prevent Frost Action', June 1946. It presents a study of previous investigations to determine the relationship between void ratio and the amount of salt required to prevent frost action, the results of laboratory tests to determine the effect of rock content of soils on the amount of admixture required to make them non frost susceptible, and the results of laboratory tests to determine the effectiveness of 'Darex AEA' as an admixture for preventing frost action. Representative data are presented. (Author)

Descriptors: (*Landing fields, Freezing), (*Freezing, Soil mechanics), Frost heave, Pavements, Water, Ice, Salts, Ice prevention, Test methods, Statistical data

Identifiers: *Frost penetration

AD 712 493 CFSII Prices: HC A04/MF A01

FROST INVESTIGATION 1944-1945. APPENDIX 8. REPORT ON CASPER AIRBASE, CASPER, WYOMING. APPENDIX 9. REPORT ON FARGO MUNICIPAL AIRFIELD, FARGO, NORTH DAKOTA. APPENDIX 10. REPORT ON BISMARCK MUNICIPAL AIRFIELD, BISMARCK, NORTH DAKOTA

Arctic Construction and Frost Effects Lab Boston Mass (032750)
A1035F3 Fld: 8L, 8M, 1E, 51E, 64K USGRDR7023
1945 70p
Rept No: ACFEL-TR-6-App-8/10
See also Appendix 7, AD-712 389 and Appendices 11/12, AD-712 478.

Abstract: The report contains an analyses of three airfields under varying hydrological and meteorological parameters and describes the effect of frost action on existing landing strips.

Descriptors: (*Landing fields, Freezing), (*Freezing, Soil mechanics), Pavements, Frost heave, Soils, Hydrology, Water, Ice, Periodic variations, Trafficability, Statistical data, Wyoming, North Dakota

Identifiers: *Frost penetration, Fargo (North Dakota), Bismarck (North Dakota), Casper Airfield

AD-712 390 CFSII Prices: HC A04/MF A01

FROST INVESTIGATION 1944-1945. REPORT ON DOW FIELD, BANGOR, MAINE

Arctic Construction and Frost Effects Lab Boston Mass (032750)
 A0981G2 Fld: 1E, 8L, 64K, 51E USGRDR7022
 Jun 45 248p
 Rept No: ACCEL-TR-6-App-1

Abstract: The report presents the results of the frost investigation conducted at Dow Field, Bangor, Maine during the period from September 1944 through June 1945. The investigation at Dow Field includes 3 test areas in which observations were made of ground water table, frost penetration, ice segregation, water content and density. Pavement bearing tests, traffic tests and foundation modulus tests were conducted. (Author)

Descriptors: (-Landing fields, Freezing). (-Freezing, Soil mechanics). Soils, Frost heave, Pavements, Drainage, Water, Ice, Periodic variations, Sampling, Trafficability, Statistical data, Maine

Identifiers: Winter, Frost penetration, Dow Airfield

AD 712 362 CFSI Prices: HC A11/MF A01

INVESTIGATION OF THE STRENGTH PROPERTIES OF FROZEN SOILS, FISCAL YEAR 1953. APPENDIX A. INVESTIGATION DATA

Arctic Construction and Frost Effects Lab Boston Mass (032750)

Draft rept.
 A0981G1 Fld: 8L, 8M, 64K, 64L USGRDR7022
 Jun 54 286p
 Rept No: ACCEL-TR-48-Vol-2
 Project: DA-86602003
 Prepared in cooperation with Corps of Engineers, Omaha, Neb. Missouri River Div. and Snow, Ice and Permafrost Research Establishment, Wilmette, Ill. See also Volume 1, AD-712 360.

Abstract: The report contains tabulation of mechanical properties of various types of frozen soils.

Descriptors: (-Soils, -Freezing). Soil mechanics, Compressive properties, Tensile properties, Shear stresses, Sampling, Ice, Frost heave, Periodic variations, Statistical data

Identifiers: -Frozen soils

AD-712 361 CFSI Prices: IIC A13/MF A01

FROST INVESTIGATION 1945-46. REPORT ON STUDIES OF BASE COURSE

TREATMENT TO PREVENT FROST ACTION

Arctic Construction and Frost Effects Lab Boston Mass (032750)
 A0981F3 Fld: 1E, 8L, 64K, 51E USGRDR7022
 Jun 46 55p
 Rept No: ACCEL-TR-4

Abstract: The report presents a summary of previous investigations performed by others, to study the effect of admixtures on frost action, in the form of excerpts from the conclusions sustained by the reports of these investigations, the results of laboratory tests performed to determine the suitability of various admixtures and combinations of admixtures to prevent frost action in materials susceptible to frost action, and the results of laboratory tests to determine whether leaching of salts could be retarded or prevented by the addition of bituminous materials. Representative data are presented herein. (Author)

Descriptors: (-Landing fields, Freezing). (-Freezing, Soil mechanics). Soils, Frost heave, Pavements, Water, Ice, Freezing point depressants, Sampling, Periodic variations, Thermal properties, Salts, Statistical data

Identifiers: Winter, Frost penetration, Leaching

AD-712 359 CFSI Prices: HC A04/MF A01

FROST INVESTIGATION 1945-1946. REPORT ON FROST INVESTIGATIONS AND TRAFFIC TESTS, SELFRIIDGE FIELD, MICHIGAN

Arctic Construction and Frost Effects Lab Boston Mass (032750)
 A0981F2 Fld: 1E, 8L, 64K, 51E USGRDR7022
 Jun 46 109p
 Rept No ACCEL-TR-3
 Prepared in cooperation with Engineer Office, Detroit, Michigan.

Abstract: The report presents the results of the frost investigation conducted at Selfridge Field, Michigan, during the period from 31 October 1945 through 25 June 1946. The investigation includes observations of surface temperatures, subsurface temperatures, ground water table, frost penetration, ice segregation, pavement heave, water content, density and climatic conditions. Plate bearing tests were made on the pavement and base materials. Laboratory tests were performed on representative subgrade base materials and on Portland cement concrete beams and cores. The traffic tests consisted of the daily application of the specified repeated load on 2 traffic test areas during and subsequent to the frost melting period. (Author)

Descriptors: (-Landing fields, Freezing), (-Freezing, Soil mechanics), Soils, Frost heave, Pavements, Drainage, Water, Ice, Periodic variations, Sampling, Trafficability, Statistical data, Michigan

Identifiers: Winter, Frost penetration, Selfridge Airfield

AD-712 358 CFSI Prices: HC A06/MF A01

FROST INVESTIGATION 1945-1946. COMPREHENSIVE REPORT

Arctic Construction and Frost Effects Lab Boston Mass (032750)
 A0981F1 Fld: 1E, 8L, 64K, 51E USGRDR7022
 Jun 47 159p
 Rept No ACCEL-TR-9
 See also Appendix 1, AD-712 356.

Abstract: The frost investigation program for the fiscal year 1945-1946 was conducted by the Frost Effects Laboratory in the New England Division with the cooperation of the Great Lakes Division and the Missouri River Division. Field investigations were made at nine airfields, with varying subsurface conditions, located in the northern part of the United States and laboratory studies at the Frost Effects Laboratory. This report contains a method of predicting the depth of frost penetration, based upon the properties of the soils encountered. A study of the pavement failures which were caused by frost action or to which frost action was a contributing cause is presented. (Author)

Descriptors: (-Landing fields, Freezing), (-Freezing, Soil mechanics), Soils, Frost heave, Pavements, Drainage, Water, Ice, Periodic variations, Sampling, Trafficability, Thermal properties, Statistical data, Maine, Wisconsin, South Dakota, North Dakota, Kansas

Identifiers: Winter, Frost penetration

AD-712 357 CFSI Prices: HC A08/MF A01

FROST INVESTIGATION 1945-1946. REPORT ON DOW FIELD, BANGOR, MAINE

Arctic Construction and Frost Effects Lab Boston Mass (032750)
 A0981E4 Fld: 1E, 8L, 64K, 51E USGRDR7022
 Jun 46 101p
 Rept No ACCEL-TR-9-App-1
 See also Appendixes 2, and 3, AD-712 353.

Abstract: The report presents the results of the frost investigation conducted at Dow Field, Bangor, Maine during the period from 11 October 1945 through June 1946. The investigation at Dow Field includes four test areas in which observations were made of ground water table, subsurface temperatures, frost penetration, ice segregation, water content, and density. Plate bearing tests were conducted. The climatic and other general conditions related to the frost investigation at Dow Field also are included in this report. (Author)

Descriptors: (-Landing fields, Freezing), (-Freezing, Soil mechanics), Soils, Frost heave, Pavements, Drainage, Water, Ice, Periodic variations, Sampling, Trafficability, Statistical data, Maine

Identifiers: Winter, Frost penetration, Dow Airfield

AD-712 356 CFSI Prices: HC A06/MF A01

FROST INVESTIGATION 1945-1946. REPORT ON WATERTOWN AIRFIELD, WATERTOWN, SOUTH DAKOTA TARGO MUNICIPAL AIRFIELD, FARGO NORTH DAKOTA AND GREAT BEND AIRFIELD, GREAT BEND, KANSAS

Arctic Construction and Frost Effects Lab Boston Mass (032750) Fld 1E, 8L, 64K, 51E USGRDR7022
A0981E3 Jun 46 107p
Rept No ACCEL-TR 9-App-7/8
Prepared in cooperation with Corps of Engineers, Omaha, Neb.
Missouri River Div Also includes Appendix 9. Also also AD 712 357.

Abstract: This report presents the results of the frost investigations conducted at Watertown Airfield, Fargo Municipal Airfield, and Great Bend Airfield during the period November 1945 through May 1946. The investigations included the measurement of pavement heaving caused by frost action, the observation of subsurface temperatures, frost penetration and ground water table. The investigations include both flexible and rigid type pavements.

Descriptors: (-Landing fields, Freezing). (-Freezing, Soil mechanics), Soils, Frost heave, Pavements, Drainage, Water, Ice, Periodic variations, Sampling, Statistical data, South Dakota, North Dakota, Kansas

Identifiers: Winter, Frost penetration, Watertown Airfield, Fargo Airfield, Great Bend Airfield

AD-712 355 CFSII Prices: HC A06/MF A01

FROST INVESTIGATION 1945-1946. REPORT ON TRUAX FIELD, MADISON, WISCONSIN

Arctic Construction and Frost Effects Lab Boston Mass (032750) Fld 1E, 8L, 64K, 51E USGRDR7022
A0981E2 Jun 45 107p
Rept No ACCEL-TR 9-App-4
Prepared in cooperation with Engineer Office, Milwaukee, Wis.
See also Appendices 7, 8, and 9, AD-712 355.

Abstract: The scope of the investigation at Truax Field included periodic test pits to determine the changes in soil conditions, observation of air and subsurface temperatures, ground water observations, measurement of frost heave and and subsidence, and field plate bearing tests. (Author)

Descriptors: (-Landing fields, Freezing). (-Freezing, Soil mechanics), Soils, Frost heave, Pavements, Drainage, Water, Ice, Periodic variations, Sampling, Statistical data, Wisconsin

Identifiers: Winter, Frost penetration, Truax Airfield

AD 712 354 CFSII Prices: HC A06/MF A01

FROST INVESTIGATION 1945-1946. REPORTS ON PRESQUE ISLE AIRFIELD, PRESQUE ISLE, MAINE AND BEDFORD AIRFIELD, BEDFORD, MASS

Arctic Construction and Frost Effects Lab Boston Mass (032750) Fld 1E, 8L, 64K, 51E USGRDR7022
A0981E1 Jun 46 138p
Rept No ACCEL-TR 9-App-2/3
See also Appendix 4, AD-712 354.

Abstract: The reports present the results of the frost investigation conducted at Presque Isle Airfield, Presque Isle, Maine, and Bedford Mass., Airfield during the period from October 1945 through June 1946. The investigation included four test areas in which observations were made of ground water table, subsurface temperatures, frost penetration, ice segregation, pavement heave, water content, and density. Plate bearing tests were conducted. The climatic and other general conditions related to the frost investigation at Presque Isle Airfield and Bedford Airfield are included in these reports.

Descriptors: (-Landing fields, Freezing). (-Freezing, Soil mechanics), Soils, Frost heave, Pavements, Drainage, Water, Ice, Periodic variations, Sampling, Statistical data, Massachusetts, Maine

Identifiers: Winter, Frost penetration, Presque Isle Airfield, Bedford Airfield

AD-712 353 CFSII Prices: HC A07/MF A01

DIALOG File: NTIS - 64-82/Iss20 (Copr. NTIS) Item 88 of 149 User 5208 1sep82

SOIL STABILIZATION. EFFECT OF MOLDING CONDITIONS ON THE EFFECTIVE STRESS-STRENGTH BEHAVIOR OF A STABILIZED CLAYEY SILT

Massachusetts Inst of Tech Cambridge Soil Mechanics Div (220080)

Phase rept no. 8 on soil stabilization
 AUTHOR: Wiss, Anwar E. Z.; Feterbaum-Zyto, Samuel; Panigrahi, Jose Guillermo
 A089382 Fld 8M, 64L USGDR7021
 Jan 70 142
 Rept No. R69-55; Soils Pub-242
 Contract DA-22-079-eng-465
 Project DA-1-T-0611102-B-52-A, DA-1-T-01451-B-52-A
 Task 1-T-0611102-B-52-A-01, 1-T-01451-B-52-A-00
 Monitor AFWS-CR-3-63-8

Abstract: The influence of molding water content, as-molded dry density, and delay time prior to compaction after mixing in of the molding water on the effective stress strength behavior of a clayey silt stabilized with hydrated lime and portland cement is presented in this report. This investigation used the results of high pressure consolidated-undrained triaxial compression tests with pore water pressure measurements. (Author)

Descriptors: (*Silt, Soil mechanics), (*Soils, Stabilization), Clay, Compressive properties, Shear stresses, Density, Strain(Mechanics), Pressure, Water, Statistical data, Cements

Identifiers: Portland cements, *Soil stabilization, Pore pressure, Graphs(Charts)

AD-711 536 CFSTI Prices: HC A07/MF A01

PILE DRIVING BY MEANS OF LONGITUDINAL AND TORSIONAL VIBRATIONS

Cold Regions Research and Engineering Lab Hanover N.H. (031100)

Special rept.
 AUTHOR: Kovacs, Austin; Michittl, Frank
 A0893A3 Fld: 13M, 20K, 60H USGDR7021
 Jul 70 230
 Rept No. CRREL-SR-141
 Project DA-1-T-062112-A-130
 Task: 1-T-062112-A-13001

Abstract: This report discusses vibratory pile driving with particular emphasis on pile driving at resonance where maximum driving efficiency can be expected. The theories and concepts associated with longitudinal and torsional pile driving are presented to show that torsional resonance does not appear to be as effective a method as longitudinal resonance and that considerable variations can exist between calculated and observed resonant frequencies. While it is pointed out that

equations by Bernhard and Kovacs predict pile resonance in close agreement with that observed during actual pile driving. It is also suggested that these equations be subjected to a more rigorous evaluation to determine whether they can predict the resonant frequency of all force generator - column systems. (Author)

Descriptors: (*Foundations(Structures), Installation), (*Vibrators(Mechanical), Performance(Engineering)), Vibration, Resonant frequency, Shear stresses, Modulus of elasticity, Mathematical analysis, Statistical data, Soil mechanics

Identifiers: *Pile structures, *Pile driving

AD-711 533 CFSTI Prices: HC A02/MF A01

AN INTERPRETIVE REVIEW OF SEISMIC DESIGN METHODS

Oak Ridge National Lab., Tenn
 A066303 Fld: 18E, 8K, 77H, 64J NSA2413
 May 70 97p
 Contract W-7405-eng-26
 Prepared in cooperation with United Nuclear Corp., Elmsford, N.Y.

Descriptors: (*Nuclear power plants, Earthquake-resistant structures), Seismic waves, Rock(Geology), Soil mechanics, Earthquakes, Simulation, Probability, Design

DRNL TM-2900 CFSTI Prices: HC A05/MF A01

STRAIN DISTRIBUTION AROUND UNDERGROUND OPENINGS. STATISTICAL METHODS TO COMPARE AND CORRELATE ROCK PROPERTIES - COMPUTER TECHNIQUES

Purdue Univ Lafayette Ind School of Civil Engineering (291950)

Technical rept

AUTHOR Nadas, Patricia

A0385K4 Fld 8G, 20K, 13B, 64L USGRDR7014

May 70 140p

Rept No TR-4

Contract DACA73-68-C-0002

Supplement to Technical rept, no. 2, AD-701 086.

PORTIONS OF THIS DOCUMENT ARE NOT FULLY LEGIBLE

Abstract: A data tape is necessary for the storage of a systematized collection of physico-mechanical properties of rocks. Specific programs permit the obtaining of descriptive information on the data - ranges, means, and counts. Statistical routines yield histograms, scattergrams, and least squares equations. One objective is to provide information that can form the basis for some degree of uniformity in such research. Experience with the programs yielded certain principles and changes that would improve efficiency. It is recommended that one choose an efficient means of data storage, maintain a back up data source and precise records, run all descriptive programs first, process as many cases per later interpretation, and label output meaningfully. (Author)

Descriptors: (*Rock(Geology)). Structural properties). (*Data processing systems. Rock(Geology)). Statistical analysis. Underground structures. Strain(Mechanics). Computer programs. Construction. Deformation. Tensile properties. Hardness. Least squares method. Data storage systems. Modulus of elasticity. Poisson's ratio. Rupture

Identifiers: *Rock mechanics. *Underground openings

AD 706 936 CFSI Prices HC A07/MF A01

THE STATISTICAL APPROACH TO QUALITY CONTROL IN HIGHWAY CONSTRUCTION. PHASE II. DEVELOPING ACCEPTANCE SAMPLING PLANS AND PHASE III. TRIAL USE OF ACCEPTANCE SAMPLING PLANS. PART A. COMPACTED EMBANKMENTS

North Dakota State Univ. Fargo. Engineering Experiment Station

AUTHOR Jorgenson, James L.

A0315G3 Fld 13B, 60F USGRDR7013

Dec 69 46p

Rept No Ser 17

Sponsored in part by Bureau of Public Roads, Washington, D.C.

See also Part A of Phase I, PB-182 285.

Abstract: Previous research indicated that present accepted bituminous pavement construction does not meet specified requirements. Also on projects researched each contractor was paid 100 percent of bid price even though there was a wide range of below specification construction between jobs. A specification developed will accept construction on the basis of the average of 5 test results per LOT for nominal largest sieve, no. 4 sieve, no. 30 sieve, no. 200 sieve, AC content, compaction and thickness. Adjustment price schedules are provided for the acceptance of below standard construction. A nuclear gage correlation with densities obtained from cores is included. (BPR abstract)

Descriptors: (*Roads. Construction materials). (*Construction materials. Quality control). Bituminous coatings. Pavements. Specifications. Costs. Cost effectiveness. Sampling. Contracts. Statistical analysis. Soil mechanics

Identifiers: Embankments

PP 191 401 CFSI Prices HC A07/MF A01

STUDY OF EROSION IN ROADSIDE DRAINAGE CHANNELS IN NORTH CAROLINA

North Carolina State Univ., Raleigh. School of Engineering.
(259 350)
AUTHOR Amein, Michael; Chu, H. L.
A0315F4 Fld: 13B, 8M, 60F USGRDR7013
Sep 69 66p
Prepared in cooperation with Bureau of Public Roads,
Washington, D.C. and North Carolina State Highway Commission,
Raleigh. Appendix to Proj. ERD-110-68-4, PB-191 397.

Abstract As part of an effort to establish criteria for the design of roadside drainage channels, a survey of many sites was made along the North Carolina highways. The survey consisted of measurement of the size of the contributing surface areas to the drainage, the measurement of the channel slope, the measurement of the channel cross section, identification of the surface cover, identification of points of incipient and severe erosion, identification of the extent of erosion and finally, testing of the soil samples. The soil test included sieve analysis and determination of the Atterberg limits. In addition, the location of each test site was marked on an area map. The results of this survey have been used to develop guidelines for the design of roadside channels. From these guidelines, the designer can hopefully predict whether a particular roadside channel (earth or grass) will be resistant to erosion and remain stable or whether there is a greater probability for erosion. In the latter case the use of a more resistant surface treatment such as paving would be recommended. This Appendix contains data and information which were used in the study on roadside drainage channels. (Author)

Descriptors: (*Roads, Drainage), (*Erosion, Roads), Site selection, Sampling, Soil mechanics, Stability, Statistical data, North Carolina

Identifiers: Ditches, *Drainage channels

PB-191 398 CFSTI Prices: HC A04/MF A01

STUDY OF EROSION IN ROADSIDE DRAINAGE CHANNELS IN NORTH CAROLINA

North Carolina State Univ., Raleigh. School of Engineering.
(259 350)

Final rept.
AUTHOR Amein, Michael; Chu, H. L.
A0315F3 Fld: 13B, 8M, 60F USGRDR7013
Apr 70 55p
Rept No NCSTU-ERD-110-68 4
Prepared in cooperation with Bureau of Public Roads,
Washington, D.C. and North Carolina State Highway Commission,
Raleigh. See also PB-191 398.

Abstract: An extensive field study of the performance of roadside drainage channels in North Carolina against the action of erosive forces was conducted under this research. From the results of these field observations and measurements, a criteria for the design of stable roadside channels was developed. The report presents three methods of determining whether a triangular shaped roadside drainage channel will be stable if it is fully grassed, partially grassed or bare earth when the discharge to be carried, the slope of the channel bottom, the side slope of the channel, and the soil characteristics of the channel are known. (BPR abstract)

Descriptors: (*Roads, Drainage), (*Erosion, Roads), Soil mechanics, Stability, Grasses, Pavements, Iterative methods, Statistical data, North Carolina

Identifiers: Ditches, *Drainage channels

PB-191 397 CFSTI Prices: HC A04/MF A01

EXPERIMENTAL SAND DRAIN STUDY NAPA. RIVER PROJECT, MARE ISLAND 10:501-37-PM 7.1/7.4

California State Div. of Highways. Materials and Research Dept

Final rpt.
 Author Smith, Travis; Weber, W. G. Jr; Shirley, Earl; Howe, D. R.; Chang, George H.
 A031411 Fld 8H, 60F USGRDR7013
 Oct 69 1190
 Rept In M/R-632724
 See also report dated Jan 66, PB-177 602. Prepared in cooperation with Bureau of Public Roads, Washington, D.C.

Abstract. The results of a special study, involving the use of sand drains to aid the consolidation of weak compressible soils, are presented. Settlements, excess hydrostatic pressures, strength and moisture changes, instrumented movements, and failures are discussed. It was found that actual consolidation time lagged behind the theoretical predictions in the sand drain areas. This lag could be predicted by theoretical consideration of the disturbance caused by the displacement method of sand drain installation. High excess hydrostatic pressures, caused by the sand drain installation contributed to failure of the embankment in the sand drain area. (Author)

Descriptors: (-Bridges, Soil mechanics), (-Sand, Drainage), Hydrology, Soils, Underwater, Compressive properties, Pipes, Hydrostatic pressure, Permeability, Statistical data, California

PB-191 357 CFSII Prices: HC A06/MF A01

NEW YORK STATE APPALACHIAN RESOURCE STUDIES: SOILS. PHASE 1: INVENTORY

New York State Office of Planning Coordination, Albany.
 A031383 Fld 8M, 52J, 57E USGRDR7013
 1969 88p
 Prepared in cooperation with Cornell Univ., Ithaca, N.Y. Dept. of Agronomy. Limited number of copies containing color other than black and white are available until stock is exhausted. Reproductions will be made in black and white only.

Abstract. The study of Appalachia soils provides a key to understanding the nature of the environment, explaining past and present land uses, and planning and predicting future development. The purpose is to provide information on a general soil map of the 14 counties at 1:250,000 scale (1" to 4 miles). Interpretations of the soil map, showing capabilities of the various soil areas for rural and urban uses, will be made in a subsequent publication. (Author)

Descriptors: (-Soils, -New York), (-Mountains, Soils),

Statistical analysis, Classification, Drainage, Terrain, Surveying, Maps, Rural areas, Urban areas, Rock(Geology), Geologic age determination, Soil mechanics, Gravel, Sand, Tables

Identifiers: *Appalachian Region, Land Use, Regional planning, Physiography, Soil texture

PB-191 279 CFSII Prices: HC A05/MF A01

PERFORMANCE EVALUATION OF WHEELS FOR LUNAR VEHICLES (SUMMARY REPORT)

Army Engineer Waterways Experiment Station Vicksburg Miss (O&B100)

Final rept
 AUTHOR Freitag, Dean R.; Green, Andrew J.; Melzer, Klaus-Jurgen
 A0784J3 Fld: 22A, 3B, 84B, 85D USGRDR7013
 May 70 84p
 Rept No: AEWES-Misc-Paper-M-70-4
 See also AD-702 246.

Abstract. One pneumatic wheel, four metal-elastic wheels, and two instrumented vehicles were laboratory tested in a fine sand to determine their relative performance and to establish a better understanding of the basic principles of the interaction of very lightly loaded wheels with a soil whose properties were varied to include the probable range of lunar soil properties. Programmed-slip tests were conducted with the single wheels and the vehicles, the latter being tested on both slopes and level surfaces. Data indicate that for loads less than about 220 N (50 lb), the pull/slope-climbing ability was constant for a given soil condition. At greater loads, the rate of increase in performance decreased. The effect of cohesion on performance was negligible at loads less than about 220 N (50 lb), but the effect could be seen at higher loads. The power required, in whr/km, for operation of the wheels on level and sloping soil surfaces was determined. It was demonstrated that data from single-wheel tests can be used to predict the slope-climbing ability of a vehicle, such predictions tend to be slightly conservative. Results of tests with the vehicles indicate that the torque coefficient at a given slip was not significantly affected by variations in surface slope and soil strength. (Author)

Descriptors: (*Lunar surface vehicles, Vehicle wheels), (*Vehicle wheels, Performance(Engineering)), Lunar environment, Simulation, Soils, Soil mechanics, Trafficability, Vehicles, Mobility, Tires, Test methods, Statistical data

Identifiers: Evaluation

AD-705 570 CFSII Prices: HC A05/MF A01

ROCK BREAKAGE BY PELLET IMPACT

III Research Inst., Chicago, Ill. (175 350)

Final rept
 AUTHOR Singh, Madan M.
 A0732C1 Fld: 8G, 20K, 911 USGRDR7012
 24 Dec 69 92p
 Contract: D013-0171
 Project: IITRI-D6000

Task: D600010
 Monitor: FRA-RT-70-29

Abstract: This report discusses a study of rock breakage affected by the use of high-speed pellets. A previous study had been conducted at IITRI in which two rock types were subjected to hypervelocity impact by solid Zelux pellets as well as hollow, water-filled capsules. In this extension to the above study six rock types, viz. French Creek gabbro, Milford Pink granite, Connecticut brownstone, Minnesota dolomite, Indiana limestone, and Massillon sandstone, were investigated. The compressive strengths of these rocks range from 390 MN/square meters to 30 MN/square meters (56,900 psi to 4,400 psi). Other mechanical properties of the rocks were also determined. Craters with volumes ranging from almost negligible values to 52 cc (3.2 cu in.) were obtained. Regression equations for crater volume and crater depth in terms of the impact parameters and rock properties were determined. Impact pressures/compressive strength ratios of up to nearly 1000, with the weaker rocks, were obtained. (Author)

Descriptors: (*Rock(Geology), Spallation), Light gas guns, Pellets, Impact, Cratering, Compressive properties, Spallation, Statistical analysis

Identifiers: *Rock mechanics

PB-190 965 CFSII Prices: HC A05/MF A01

SHEAR AND SLIDING RESISTANCE TESTS OF ROCK JOINTS FOR FOREBAY DAM-GRAND COULEE THIRD POWERPLANT PROJECT

Bureau of Reclamation, Denver, Colo. Office of Chief Engineer (401 851)
AUTHOR: Haverland, M. L.; Butler, G. L.

7484K1 Fld: 13M, 20K, 8G, 903 USGRDR7009

Jan 70 34p

Rept No: REC-OCE-70-6

Abstract: Shear and sliding resistance tests were conducted in the Bureau of Reclamation laboratory and at Grand Coulee Dam, Wash., on 15- by 15- by 8-in. rock blocks to determine the apparent cohesion and sliding resistance of rock joints in the area of the Forebay Dam for the Third Powerplant. Laboratory tests utilized the 5-million-pound testing machine for the normal load and a 200-ton ram for the sliding (shearing) load. The in situ tests used a cable tensioned by a 60-ton ram for a normal load and another 60-ton ram for the sliding load. Movements were measured using displacement transducers, and were recorded continuously on x-y recorders. (Author)

Descriptors: (*Foundations(Structures)), Rock(Geology)), (*Rock(Geology)), Fracture(Mechanics)), (*Joints, Rock(Geology)), Shear Stresses, Dams, Power Plants(Establishments), Statistical data, Loading(Mechanics), Washington(State)

Identifiers: Rock mechanics, Rock foundations, Forebay dam, Grand Coulee dam, *Rock joints, *Sliding resistance

PB-190 069 CFSTI Prices: HC A03/MF A01

NSF-UCER CONFERENCE ON EARTHQUAKE ENGINEERING RESEARCH MARCH 10-11, 1967 CALIFORNIA INSTITUTE OF TECHNOLOGY PASADENA, CALIFORNIA

Universities Council for Earthquake Engineering Research
AUTHOR: Berg, G. V.; Clough, R. W.; Hudson, D. E.; Newmark, N. M.

7405H3 Fld: 8K, 13M, 911 USGRDR7008

May 67 35p

Prepared in cooperation with the National Science Foundation, Washington, D.C. Engineering Div.

Abstract: The primary objective of the second Conference on Earthquake Engineering Research was to bring together a group of investigators and senior research workers so that an informal interchange of ideas could occur, and basic research goals could be formulated. To this end, the Conference consisted mainly of a series of informal discussion meetings of special working groups, each under the guidance of a Chairman, assisted by a Reporter to help in the preparation of a brief report summarizing the group's deliberations. These summaries of the working group sessions are given in the present report as they were submitted by the reporters at the end of the Conference.

Descriptors: (*Earthquakes, Symposia), Earthquake warning systems, Earthquake-resistant structures, Microseisms, Predictions, Probability, Seismology, Seismological stations, Soil mechanics, Ocean waves, Interactions, Reports

Identifiers: Earthquake engineering

PB-189 424 CFSTI Prices: HC A03/MF A01

STRAIN DISTRIBUTION AROUND UNDERGROUND OPENINGS. STATISTICAL METHODS TO CORRELATE ROCK PROPERTIES AND PRELIMINARY RESULTS

Purdue Univ Lafayette Ind School of Civil Engineering (241956)

Technical rept.

AUTHOR: Judd, Wm. R.

733322 Fld: 8G, 20K, 13B, 903, 911 USGRDR7007

Dec 69 114p

Rept No: TR-2

Contract: DACA73-68-C-0002

See also Technical rept. no. 3, AD-701 087.

Abstract. The collection and collation of physico-mechanical properties of rock is systematized to permit computer analysis of large quantities of such data. The main objectives of the computer codes presented here are to permit rapid retrieval of specific properties of specific rock types and to determine if two or more different rock properties can be correlated by statistical methods. Initial linear regression analyses were performed on pairs of properties, where one property was a measurement of the velocity of propagation of a longitudinal or transverse wave through a specimen or a rock system (in situ). These analyses indicate that when wave velocity is compared to impact toughness, static modulus of deformation, static modulus of rupture, unconfined compressive strength, or Young's modulus of elasticity (determined by static loading), each such pair of comparisons has a correlation coefficient greater than 0.70. It also was found that there was a 0.80 correlation coefficient between measurements of longitudinal wave velocities in laboratory specimens and in rock masses in the field. (Author)

Descriptors: (*Rock(Geology), Structural properties), (*Data processing systems, Rock(geology)), Statistical analysis, Underground structures, Strain(Mechanics), Programming(Computers), Earthquakes, Construction, Underground explosions, Nuclear explosions

Identifiers: *Rock mechanics, *Underground openings

AD-701 086 CFSII Prices: HC A06/MF A01

TRACING STORMFLOW TO VARYING SOURCE AREAS IN A SMALL, FORESTED WATERSHED IN THE SOUTHEASTERN PIEDMONT

Georgia Univ., Athens. School of Forest Resources.

Doctoral thesis

AUTHOR: Tischendorf, Wilhelm G.

727311 Fld: 8H, 2F, 911, 914 USGRDR7006

1969 124p

Monitor: W69-09740

Abstract: The existence and areal extent of subsurface stormflow was studied on a 60-acre forested watershed in the Georgia Piedmont. Between January 1967 and March 1968, 14,519 moisture readings were obtained from 42 sites on the watershed to a maximum depth of 20 feet below the soil surface. Hydrographs were separated into stormflow and baseflow by a standardized slope of 0.05 cm/hr. From 55 rain storms during the study period, 36 had stormflow volumes equal to channel precipitation, with no evidence of overland flow. The study was a unique analysis of the variability of the source area for stormflow on an entire watershed, proving that the variable source area concept is a valid representation of the rainfall-runoff relation. (Author)

Descriptors: (*Forestry, Georgia), (*Storms, *Drainage), Fluid flow, Volume, Rainfall, Sources, Moisture, Soil mechanics, Regression analysis, Statistical analysis, Evapotranspiration, Theses

Identifiers: *Forested watersheds, Ground water, Runoff

FB-189 042 CFSII Prices: HC A06/MF A01

EARTHQUAKE OCCURRENCE AND EFFECTS IN OCEAN AREAS

Wilson (Basil W.), Pasadena, Calif. (388 755)

Final rept. 28 Jun 68-31 Mar 69

AUTHOR: Wilson, Basil W.

7191K2 Fld: 8K, 8J, 8G, 911 USGRDR7005

Mar 69 1969

Contract N62399-68-C-0012

Project V-F015-21-02-005A

Monitor: MCL-Cr-69-027

Distribution Limitation now Removed.

Abstract: Present-day concepts of the major seismic zones around the world are discussed in relation to observed features of earthquake occurrence. There is mounting evidence that vertical cellular convection of earth's mantle material is responsible for sea floor spreading about the mid-ocean ridges and for under-thrusting of oceanic crustal blocks beneath adjacent continental crusts. Earthquake activity is largely confined to the boundaries of these crustal blocks, where thrust faulting along island arcs and shear along transform or transcurent faults are proceeding. Seismicities of different oceanic regions are presented in terms of available statistics on earthquake occurrence relative to earthquake magnitude. Characteristic features of terrestrial earthquakes are reviewed, as well as known features of large submarine earthquakes, both as to tectonic movements and sea disturbances. (Author)

Descriptors: (*Earthquakes, *Reviews), Faults(Geology), Seismic waves, Ocean waves, Statistical analysis, Terrain, Motion, Damage, Acceleration, Hydrodynamics, Soil mechanics, Ocean currents, Sedimentation, Ocean bottom

Identifiers: Earth mantle, Ocean floor spreading, Ocean ridges, Underwater structures, Oceanic crust, Tectonics

AD B59 931 CFSII Prices HC A09/MF A01

FRACTURE OF ROCK DUE TO HIGH PRESSURE, SHORT DURATION LOADINGS

Hydronautics Inc Laurel Md (174500)

Technical rept.

AUTHOR: Van Dyke, P.; Conn, A. F.; Dagen, G.

6824J1 Fld 8G, 20K, 18C, 911 USGRDR6924

Sep 69 18p

Rpt No 903-1

Contract: N00228-69-C-0409

Abstract: The results of a preliminary theoretical and experimental research program investigating the dynamic fracture of rock due to high pressure, short duration loadings are presented. Efforts were centered on hypothesizing a dynamic failure mechanism and verifying this model by a small

number of laboratory experiments. The model proposed is one where the statistical stress distribution accounts for the initiation of failure events and the duration of the stress determines the coalescence of these failure events into failure surfaces. The experimental program defined the regimes in which stress and geometric parameters affect the dynamic failure; very general correlation between the experiments and theory was possible. (Author)

Descriptors: (*Nuclear explosions, Rock(Geology)), (*Rock(Geology), Fracture(Mechanics)), Loading(Mechanics), Pressure, Shock waves, Failure(Mechanics), Stresses, Mathematical models, Statistical analysis, Cracks, Particle size, Microphotography, Tensile properties, Deformation

Identifiers: Particle statistics, Rock mechanics, Overpressure

AD 695 776 CFSII Prices HC A02/MF A01

INVESTIGATION INTO THE USES OF STATISTICAL PROCEDURES IN SPECIFICATION WRITING AND QUALITY CONTROL

Maryland State Roads Commission, Brooklandville. Bureau of Research.

Final rept
AUTHOR Smith, Nathan L. Jr. Parrish, A. Scott
648344 Fld 13C, 13B, 901 USGDR6919
Apr 69 48p.
Project HPR-AW-68-66-46
Prepared in cooperation with Miller-Wardner Associates, Raleigh, N.C. and Bureau of Public Roads, Washington, D.C.

Abstract The project demonstrated the application of several methods and techniques of statistical and statistical analysis to accepted tests of highway construction materials. The results vary rather widely in numerical values. Some techniques could and have been put in routine use as a result of the study. Other techniques on certain materials called for such extreme values that the authors questioned them as being in error or the method being inappropriate. The authors concluded that there are areas where statistical control techniques are suitable for use and other areas exist where there is a need for change in statistical concepts or test methods, or both before the S.R.C. proceeds with writing and enforcement of statistically oriented specifications (Author)

Descriptors: (*Roads, Construction materials), (*Construction materials, Quality control), (*Specifications, Construction materials), Concrete, Soil mechanics, Cements, Asphalt, Sampling, Analysis of variance, Specifications, Test methods, Statistical tests

Identifiers: Portland cements

PB-185 049 CFSII Prices HC A03/MF A01

THE STATISTICAL APPROACH TO QUALITY CONTROL IN HIGHWAY CONSTRUCTION. PHASE I. MEASURING THE VARIABILITY. PART A. COMPACTED EMBANKMENTS

North Dakota State Univ., Fargo. Engineering Experiment Station.
AUTHOR Jorgenson, James L.
5702L3 Fld 13B, 8M USGDR6907
Nov 68 43p.
Rept No: Ser-15
Prepared in cooperation with the Bureau of Public Roads, Washington, D.C. See also Part B, PB-182 286.

Abstract: The work reports on measurements of variability of percent compaction and moisture content of accepted embankments on three highway grading projects, each located in a major geological area of the State. In-place random density

comparisons were made of the water balloon method, with nuclear moisture density gage in direct transmission with 6 inch probe penetration and with backscatter position readings of flush density. Flush moisture content, two-inch air gap density, and standard counts for moisture and density. (BPR Abstract)

Descriptors: (*Roads, Construction), (*Soils, *Compacting), Soil mechanics, Analysis of variance, Sampling, Moisture, Density, Backscattering, Nuclear industrial applications, Non destructive testing, Quality control, Tables

Identifiers: Highways, Embankments, Nuclear moisture density instruments

PB 182 285 CFSII Prices PC A03/MF A01

USE OF RETARDERS WITH CEMENT TREATED SOILS

Virginia Highway Research Council, Charlottesville.

Interim rept. no 3

AUTHOR Tice, J. A.

5634F1 FID 8M, 11R USGRDR6906

Nov 68 36p

Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract: This report presents the results of freeze thaw durability tests on soil-cement specimens to which a sugar-lime retarder has been added. Two soils, a silty sand and a silt, were used. Seven percent cement (by weight of dry soil) plus 0.375 percent sugar and 10 percent lime (by weight of cement) was added to the silty sand; 17.5 percent cement plus 0.625 percent sugar and 10 percent lime was added to the silt. Loss in compressive strength of Harvard miniature specimens after 0, 3, 6, 10, 15, 20 and 25 cycles of freezing and thawing was used to measure the relative durability of retarded and non-retarded specimens. Each cycle consisted of freezing in air at -10 degrees F for 8 hours and thawing in a moist room at 72 degrees F and 100% R.H. for 16 hours. Results of the study indicate the addition of a sugar lime retarder does not decrease freeze-thaw resistance of soil cement mixtures. (BPR Abstract)

Descriptors: (*Soils, Stabilization), (*Cements, Soils), Additives, Soil mechanics, Freezing, Melting, Compressive properties, Aging(Materials), Statistical analysis, Virginia

Identifiers: *Retarders

PB-192 115 CFSII Prices PC A03/MF A01

THE BEHAVIOR OF SATURATED FLORIDA LIMEROCKS UNDER REPEATED LOADING: PART II. FLEXIBLE PAVEMENT DESIGN

Florida Univ., Gainesville, Engineering and Industrial Experiment Station. (139 950)

Interim rept. 1967-1968

AUTHOR: Harper, F. E.

551303 FID 17R, 8G, 20K USGRDR6904

5 Dec 68 71p

Project: DR 5540, S-2-66

Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract: Five different Florida Limerocks were tested in a saturated condition by the Florida Limerock Bearing Ratio Test and also triaxially under static and repeated loads. (BPR abstract)

Descriptors: (*Roads, Pavements), (*Limestone, Loading(Mechan-

ics)), Soil mechanics, Plasticity, Life expectancy, Failure(Mechanics), Compacting, Statistical analysis, Gravel, Florida

Identifiers: Graphs(Charts), Saturation

PB-180 682 CFSII Prices: PC A04/MF A01

COMPARISON OF OBSERVED RESISTIVITY MEASUREMENTS TO CONSTRUCTED PROJECTS

South Dakota Dept. of Highways.

Final rept.

AUTHOR Lidel, Philip D.; Grimes, Walter W.

551302 FID 13M, 8G, 14B USGRDR6904

Aug 68 103p

Rept No: HP-5817(03)

Project: HPR-1(3), 608(66)

Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract: A program was initiated to study data in regard to the relative significance of information derived from resistivity surveys in regard to material excavation estimates. Objectives included a determination of the relative accuracy and cost of the method as compared to conventional drilling techniques, and consideration of possible improvements in field procedures and equipment and in data interpretation. Resistivity data involved foundation studies, gravel location and hard rock estimation. BPR abstract)

Descriptors: (*Roads, Foundations(Structures)), (*Soil mechanics, Measuring devices(Electrical + electronic)), Drilling, Correlation techniques, Resistance(Electrical), Sand, Clay, Gravel, Silt, Statistical analysis, Moisture, Electrical conductance, Structural geology, Natural resources, Maps, South Dakota

Identifiers: Graphs(Charts), *Resistivity surveys

PB-180 681 CFSII Prices: PC A06/MF A01

SOIL MOISTURE TENSION VARIATION ON CUTOVERS IN SOUTHWESTERN OREGON

Pacific Northwest Forest and Range Experiment Station, Portland, Oreg.

Forest Service research paper
AUTHOR: Hallin, William E.
550512 Fld: 2F USGRDR6904
1968 22p
Rept No: FSRP-PNW-58

Abstract: The document covers methods of estimating soil moisture tension from soil moisture content, growth, effect of silvicultural treatment on growth and response, and gives some positive steps to improve success of planting or seeding. (Author)

Descriptors: (*Forestry, Moisture), (*Soil mechanics, Oregon), Soils, Classification, Statistical distributions, Particle size, Analysis, Mathematical analysis, Structural properties, Physical properties, Tables, Periodic variations, Trees, Site selection

Identifiers: Soil moisture tension, Cutovers, Tree mortality

PB-180 664 CFSTI Prices: PC A02/MF A01

FROST SUSCEPTIBILITY OF NEW HAMPSHIRE BASE COURSES

New Hampshire Univ Durham Dept of Civil Engineering (404121)

Supplemental rept. no. 1
AUTHOR: Leary, Robert M.; Zoller, J. Harold; Sanborn, John L.
54R202 Fld: 13B, 8M USGRDR6904
Jul 67 39p
Sponsored by New Hampshire Department of Public Roads and Highways, and Bureau of Public Roads, Washington, D. C. See also Supplemental rept. no. 2, AD-679 617.

Abstract: The purpose of this study was to develop procedures for simple and rapid determination of frost susceptibility of granular materials used for base courses. Methods were employed using laboratory freezing tests and correlation with physical characteristics obtained from routine engineering tests of the materials. A freezing procedure has been developed using a Peltier battery for the heat sink, cylindrical specimens in a ring type mold and a continuous supply of water to the specimen, and determining rate of freeze of the specimen during freezing. Preparation and freezing of a specimen can be accomplished in approximately 48 hours. Data are presented to indicate the variation of freeze rate of materials depending on grain size distribution and void ratio. (BPR abstract)

Descriptors: (*Roads, *Freezing), (*Reinforcing materials,

*Frost heave), Soil mechanics, Soils, Ice, Penetration, Cold weather tests, Deposits, Particle size, Statistical analysis, Advanced planning, New Hampshire

Identifiers: Heave rates, Evaluation, Peltier battery tests

AD-679 616 CFSTI Prices: PC A03/MF A01

FROST SUSCEPTIBILITY OF NEW HAMPSHIRE BASE COURSES

New Hampshire Univ Durham Dept of Civil Engineering (404321)
AUTHOR: Biddiscombe, James F.; Zoller, J. Harold; Sanborn, John L.
54R201 Fld: 13B, 8M USGRDR6904
Jul 66 148p
Sponsored by New Hampshire Department of Public Roads and Highways, and Bureau of Public Roads, Washington, D. C. See also Supplemental rept. no. 1, AD-679 616.

Abstract: The report contains an extensive discussion of the mechanics of frost heave, based on a literature survey. The laboratory evaluation, by use of freezing apparatus developed by the U.S. Army's Cold Regions Research and Engineering Laboratory, supplemented by various physical-property tests, of unsatisfactory base course materials from three sources is also reported. The freezing tests were made on samples of: (1) unaltered material and (2) on specimens for which the normal percentage smaller than 0.02 mm. was reduced by either removing some of the material passing the No. 200 sieve or adding material retained on the No. 4 sieve. General conclusions were that: (1) some of the pavement distress in the sampled sections was not the result of detrimental frost action in the base course; (2) reduction in fines reduced the frost susceptibility of the materials; and (3) in addition to percentage smaller than 0.02 mm., gradation or particle size distribution, capillarity and permeability affect the frost susceptibility of materials, and should be further investigated. (BPR abstract)

Descriptors: (*Roads, Freezing), (*Reinforcing materials, *Frost heave), Soil mechanics, Soils, Ice, Penetration, Cold weather tests, Deposits, Particle size, Permeability, Feasibility studies, Statistical analysis, Advanced planning, New Hampshire

Identifiers: Heave rates, Evaluation, Peltier battery tests

AD-679 615 CFSTI Prices: PC A07/MF A01

THE FLOW BEHAVIOR OF SAND AT FAILURE

Brown Univ Providence R I Div of Engineering (065310)
 AUTHOR Weidner, Jay B.
 341IG1 Fld 138, 8M USGRDR6903
 Aug 68 68p
 Contract SD 86
 Monitor ARPA-E59

Abstract Inferences regarding the character of the pointwise or material flow behavior for cohesionless soils are drawn from the results of a series of tests on a sand system. Specifically these inferences are that normality to the failure surface may be preserved for projections of the plastic strain increment vector onto planes of constant hydrostatic pressure (pi-planes) and that the angular deviation from normality to the failure surface for projections of the plastic strain increment vector onto planes perpendicular to the pi-plane may, as a first approximation, be considered constant. Statistical methods were employed to establish a nest of failure envelopes in the force space of the applied tractions with a parametric dependence on the relative density at failure. The results of this analysis led to the inferences regarding material behavior. (Author)

Descriptors (*Soils, Failure(Mechanics)), (*Sand, Soil mechanics), Hydrostatic pressure, Surface properties, Plasticity, Strain(Mechanics), Approximation(Mathematics), Statistical analysis, Density, Compressive properties, Performance(Engineering), Stresses, Civil engineering, Force(Mechanics)

Identifiers Graphs(Charts)

AD 678 756 CFSTI Prices: PC A04/MF A01

THE REPEATABILITY OF TEST RESULTS USING VARIOUS CALIFORNIA BEARING RATIO PROCEDURES AND THE RESISTANCE R-VALUE

Utah State Dept of Highways, Research Section.
 5265B2 Fld 138, 20K USGRDR6824
 Aug 67 139p
 Rept No Utah RR-500 908
 Project HPR 115)
 Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract The purpose of this study was to compare and evaluate four of the standard methods for determining the bearing capacity of soils for highway construction and if possible draw a correlation between their results. Evaluation of the methods was based upon statistical concepts using the coefficient of variation, standard deviation and mean value. (Author)

Descriptors (*Roads, Soil mechanics), Loading(Mechanics),

Clay, Silt, Sand, Gravel, Density, Stability, Statistical analysis, Computer programs, Flow charting, Analysis of variance, Mixtures, Feasibility studies, Compressive properties

PB-179 860 CFSTI Prices: PC A07/MF A01

A STATISTICAL STUDY OF ROCK SLOPES IN JOINTED GNEISS WITH REFERENCE TO HIGHWAY ROCK SLOPE DESIGN. VOLUME II. APPENDICES

Colorado School of Mines, Golden, Dept. of Basic Engineering.
 519511 Fld 138, 8G USGRDR6823
 Jul 68 148p*
 Project: HPR-1-4
 See also Volume 3, PB-179 684.

Abstract This volume presents detailed descriptions of the procedures used in the study and of the results of the study. These descriptions and results are given in the form of appendices to the main report PB 179 682.

Descriptors (*Metamorphic rock, Joints), (*Roads, Design), (*Terrain, Stability), Structural geology, Mountains, Avalanches, Colorado, Soil mechanics, Friction, Molecular association, Regression analysis, Correlation techniques, Sampling

Identifiers *Highway slopes, *Gneiss, Cohesion

PB-179 683 CFSTI Prices: PC A07/MF A01

A STUDY OF VARIABILITY IN PRODUCTION, SAMPLING AND TESTING BITUMINOUS CONCRETE BASE, PART II: THE 1968-67 STUDY

Maine State Highway Commission, Materials and Research Div.
AUTHOR French, Richard; Edwards, Bryce
5144L2 Fld 11C, 138 USGDR6822
Sep 67 21p
Rept No Technical paper-67-88
Prepared in cooperation with the Bureau of Public Roads,
Washington, D. C. See also Part I, PB-173 923.

Abstract This project consisted of statistically sampling an open-graded hot bituminous base mixture produced in a batch type hot-mix plant. Fifty random samples were taken at the plant site during production, and fifty samples were obtained from same loads after they were placed on the roadway and partially rolled. The 50 roadway samples should have corresponded with the 50-truck samples, but the results indicated they did not represent the same population. The roadway samples showed less fines and less asphalt than the samples taken from the trucks at the plant. (BPR abstract)

Descriptors: (*Pavements, Bituminous Coatings), (*Concrete, Statistical analysis), Roads, Composite materials, Tolerances(Mechanics), Soil mechanics, Mixtures, Feasibility studies, Research program administration, Collecting methods

Identifiers Extraction fines

PB-179 568 CFSII Prices: PC A02/MF A01

CORRELATION OF RAPID HYDROMETER ANALYSIS FOR SELECT MATERIAL TO EXISTING PROCEDURE LDM-TR-407-66

Louisiana Dept. of Highways Research and Development
Section

Final rept.
AUTHOR Bass, George W. Jr; Cryer, Marriott M Jr
5144G4 Fld 13R, 14B USGDR6822
May 68 22p
Project 67 15
Prepared in cooperation with the Bureau of Public Roads,
Washington, D. C.

Abstract The report contains the laboratory results and statistical evaluation of a rapid hydrometer analysis as compared to the standard method of test for Mechanical Analysis of Soils. (BPR abstract)

Descriptors: (*Roads, Soil mechanics), (*Soils, *Densimeters), Sampling, Particle size, Mixtures, Viscosity, Gravity, *Components, Gravel, Particles, Statistical analysis, Clay, Sand, Colloids, Silt, Accuracy, Efficiency

PB 179 590 CFSII Prices: PC A02/MF A01

HYDRAULIC GEOMETRY OF ILLINOIS STREAMS

Illinois Univ., Urbana, Water Resources Center.

Final rept. 1 Jul 66-30 Jun 68
AUTHOR Stall, John B.; Fok, Yu-Si
5093F4 Fld 8H USGDR6821
Jul 68 50p
Rept No WRC-RR-15
Project: B-005-ILL
Prepared in cooperation with Illinois State Water Survey,
Urbana, and Department of the Interior, Washington, D. C.

Abstract: A consistent pattern has been evaluated in which the width, depth, and velocity of flow in a stream change along the course of the stream with a constant frequency of discharge. The data from 166 stream gaging stations in Illinois have been assembled and used to develop the parameters to define the hydraulic geometry of these streams. This allows computation of the reoxygenation capacity of the stream at the problem location, and will be valuable for many purposes in water resources development. (Author)

Descriptors: (*Hydrology, Illinois), Drainage, Rivers, Terrain Mapping, Soil mechanics, Site selection, Flowmeters, Statistical analysis, Numerical analysis, Geometry, Oxygen, Velocity, Hydraulic models

Identifiers: Biochemical oxygen demand, Aeration, Hydraulic geometry

PB-179 446 CFSII Prices: PC A03/MF A01

USE OF A ONE-POINT LIQUID LIMIT PROCEDURE

National Research Council of Canada Ottawa (Ontario) Div. of Building Research (243950)

Research paper

AUTHOR: Eden, W. J.

506414 Fld 8G, 8H, 8M USGDR6821

Dec 60 13p

Rept No. RP-117

Monitor: NRC-5599

Availability: Pub. in American Society for Testing Materials Special Technical Publication No. 254, p168-177 1959. No copies furnished. Available from National Research Council of Canada, Ottawa (Ontario). Div. of Building Research, \$0.25

Abstract: Soil mechanics has included using a 1-point liquid limit procedure for most routine tests. The decision to use the shortened method was based on a statistical study of 330 previous tests made by 3-point method. This paper reviews the analysis of the test records available to the author along with the results of three other independent investigations on 1-point methods. After considering the variability which can be expected in the liquid limit test, the conclusion is reached that no additional significant errors are introduced through a 1-point method. A detailed 1-point test procedure is appended to the paper. (Author)

Descriptors: (*Soils, Hydrology), (*Soil mechanics, Test methods), Water, Drainage, Mathematical prediction, Statistical distributions, Plasticity, Ions, Soils, Concentration(Chemistry), Shear stresses, Substitutes, Test equipment, Canada

Identifiers: One point liquid limit procedures

AD-674 354

AN INVESTIGATION OF NUCLEAR METHODS OF DETERMINING MOISTURE CONTENTS AND THE COMPACTED DENSITIES OF SOILS AND AGGREGATE

Idaho State Dept. of Highways, Boise. Materials and Research Div.

AUTHOR: Blackwell, Perry L.

4801G2 Fld 8M, 14B USGDR6816

Jan 68 60p

Project 26

Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract: This report contains the results of laboratory and field testing of a portable nuclear gauge for the measuring of in-place moisture content and density of earth structures. Both laboratory and field evaluations have been directed toward determining a practical and accurate method of test operation for application to construction control and

inspection. Attention was not directed toward evaluating details of machine operation, but rather on how to obtain meaningful results. (EPR Abstract)

Descriptors: (*Roads, Soil mechanics), (*Non-destructive testing, Moisture), Soils, Density, Measurement, Radiation measurement systems, Engineering personnel, Statistical analysis, Utah, Meters, Portable

Identifiers: Graphs(Charts), Nuclear gauges

PB-178 422 CFSTI Prices: PC A04/MF A01

QUALITY CONTROL OF CONSTRUCTION BY STATISTICAL TOLERANCES

Alabama State Highway Dept., Montgomery.

AUTHOR: David, J. H.

4795K4 Fld: 13B, 13C, 13H USGDR6816

May 67 254p

Rept No. HPR-29

Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract: The document shows the efforts of the Alabama Highway Department to assemble data regarding statistical quality control of highway construction by examining various types of construction projects during the 1965 and 1966 construction seasons. This report reflects the effectiveness of the construction practices then in effect toward meeting the requirements of the construction specifications. Three construction projects were examined in detail. They were: (1) a grading project; (2) a base and bituminous pavement project; and (3) a base and portland cement concrete pavement project. (Author)

Descriptors: (*Roads, Construction materials), Tolerances(Mechanics), Quality control, Construction, Asphalt, Concrete, Cements, Thickness, Composite materials, Bituminous coatings, Mixtures, Clay, Silt, Sand, Gravel, Soil mechanics, Specifications, Alabama

Identifiers: Graphs(Charts), Embankments

PB-178 477 CFSTI Prices: PC A12/MF A01

PILE-SOIL SYSTEM RESPONSE IN CLAY AS A FUNCTION OF EXCESS PORE WATER PRESSURE AND OTHER SOIL PROPERTIES

Texas Transportation Inst. College Station

Research rept

AUTHOR Airhart, Tom P.; Hirsch, T. J.; Coyle, Harry M.

4675GA Fld 13M 20K USGDR6814

Sep 67 40p.

Rept No. RR-33-8

Prepared in cooperation with Texas State Highway Dept., and Bureau of Public Roads, Washington, D. C.

Abstract. The report concerns itself with an instrumented field test pile used to investigate the failure mechanisms which are developed in clay soils subjected to pile driving and foundation loadings. The ultimate load response of the pile-soil system was evaluated for both dynamic and static loadings. A test pile instrumented with pressure transducers, strain gages, and accelerometers was driven into a saturated clay at a site in Beaumont, Texas. Measurements of strain, and acceleration of the pile were taken during driving. Pore pressure measurements were made at the pile-soil interface for a continuous period of 30 days after driving. Strain measurements were made during static load tests at 13 days and 30 days after driving. Soil borings were made for the pile in situ, remolded, and reconsolidated conditions and at specific radial distances from the pile. Conventional tests were conducted on the soil samples to measure the change in engineering properties for the different conditions. The most important single result of this study has been the determination of the mode of failure developed when a static pile is driven and loaded in a cohesive soil. Both static and dynamic load responses for the pile-soil system considered in this study are a function predominately of the soil properties within the region of local shear failure. The region of local shear failure is in turn a function of the pile diameter. (BPR Abstract)

Descriptors: (*Clay, Soil mechanics), (*Foundations(Structures), Failure(Mechanics)), Pressurization, Water, Shear stress, Underground structures, Instrumentation, Statistical analysis, Dynamics, Sampling, Mechanical properties, Response.

Identifiers: Piles(Structures), Pile driving

PR-177 890 CFSII Prices: PC A03/MF A01

STATISTICAL QUALITY CONTROL STUDY BASE COURSE

South Dakota Dept of Highways

Final rept

AUTHOR McDonald, E. B.; Anderson, Donald

463544 Fld 13B 8M USGDR6813

Dec 66 35

Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract. The purpose of this study was to establish a basis for setting future specification limits from collection of data from material analysis, to make statistical analysis of typical soil aggregate base course and to apply statistically obtained limits on a tentative basis in comparison with current specifications. Randomized samples were taken from the base courses of three widely separated projects. Determinations made for values of liquid limit, plasticity index and gradation on replicated samples. Statistical evaluation was made for variance of the material, sampling and testing. Acceptance limits of variation in the stated characteristics were tabulated. Normal distribution curves were shown for various sieve sizes and materials. The authors state that additional sampling and testing will be necessary to establish new acceptance limits as there seems to be considerable weakness between the statistically obtained acceptance limits and the existing specification limits. (Author)

Descriptors: (*Soil mechanics, *Quality control), (*Foundations(Structures), Soil mechanics), Roads, Construction materials, Soils, Specifications, Acceptability, Random variables, Statistical analysis

Identifiers: Aggregates(Materials)

PR-177 454 CFSII Prices: PC A03/MF A01

Prepared in cooperation with Bureau of Public Roads.
Washington, D. C.

Abstract A statistical analysis of the cement content of cement treated base, as determined by the titration test is reported for a project on which an automatically controlled, continuously fed mixing plant was used. The test results are analyzed and compared with the results of two similar projects from a previous study. A statistical procedure for determining the value of a change in technology was employed and evaluated. This consisted of random sampling and an analysis of variance. An analysis of the amount of variance due to sampling procedure, testing error, and actual variations within the material is included and specifications for cement control limits are proposed. (BPR abstract)

Descriptors (Cementis, Foundations(Structures)), Statistical analysis, Control systems, Analysis of variance, Errors, Construction materials, Specifications, Soil mechanics, Volumetric analysis, Quality control, Roads, Sampling

Identifiers Aggregates(Materials)

PB-178 020 CFSI Prices PC A03/MF A01

PEDOLOGICAL SOIL - HIGHWAY DISTRESS STUDY HAND COUNTY - SOUTH DAKOTA

South Dakota Dept. of Highways Physical Research Section

Final rept.

AUTHOR Crawford, R. A.; Anderson, D. W.

4633F2 Fld 13B, 8G USGRDR6813

1967 55p

Prepared in cooperation with Bureau of Public Roads.
Washington, D. C.

Abstract The intent of the study was to relate pavement performance to soil mapping units used by the Soil Conservation Service. Ten separate construction projects on three major highway and two county roads in Hand County were examined. Fifty five mapping units were included in the ten projects. Generally, a limited correlation of performance to soil mapping units was found within projects. The age of the projects ranged from 6 to 30 years and the uncertain amount of maintenance confounded the performance ratings. The variety of surface textures strongly affected road roughness readings. Sufficiency ratings and maintenance cost records proved to be of no value in measuring performance. Engineering soil classifications proved to be of little value in rating the undisturbed soil materials. However, surface and subsurface drainage did appear to be very influential in the way the subgrade soil behaved. A drainage index was devised or rating environmental conditions and the researchers believe it will prove to be useful. The researchers believe that the measured pavement thickness (including material placed during maintenance) is a reasonable means for comparing thickess designs used in the past and evaluating present and future designs. Further evaluation of these two ratings is planned for selected sites in Brookings County. (BPR Abstract)

Descriptors (Roads, Construction), (Soils, Mapping), Drainage, Pavements, Soil mechanics, Performance(Engineering), Surface properties, Classification, Environment, Thickenss, Design, Correlation techniques, South Dakota, Statistical analysis, Clay, Sand, Gravel

Identifiers Permeability, Pedological soil, Drainage index

PB-177 376 CFSI Prices PC A04/MF A01

CONTROL OF CEMENT IN CEMENT TREATED BASE

California State Div. of Highways. Materials and Research Dept.

Research rept.

AUTHOR Sherman, George B.; Watkins, Robert O.

4632E2 Fld 13B, 13H USGRDR6813

Jan 68 30p

Rept No.: M/R-631149

APPLICATIONS OF STATISTICAL SPECIFICATIONS FOR HIGHWAY CONSTRUCTION

California State Div. of Highways. Materials and Research Dept
 AUTHOR Watkins, R. O.
 458361 FID 13R USGRDR6812
 3 Feb 68 17p
 Prepared for presentation at the California Transportation and Public Works Conference (1968) University of the Pacific, January 31-February 3, 1968. Prepared in cooperation with Bureau of Public Roads, Washington, D C

Abstract A brief summary of the study titled 'Application of Statistical Quality Control Methods' in the form of a paper for presentation at a technical conference, outlining the application of statistical quality control methods for analysis of data on determination of penetration tests as asphalt, gradation of aggregate, compaction of embankments and the use of control charts of moving averages. The report does not attempt to specify frequency of sampling nor define the lot of material. The State is working towards the goal of developing more enforceable specifications.

Descriptors (-Roads, Construction materials), (-Construction materials, Specifications), Quality control, Reliability, Tests, Statistical analysis, Pavements, Asphalt, Trafficability, Soil mechanics

Identifiers Highway engineering

PB-177 876 CFSII Prices PC A02/MF A01

STUDIES OF THE KEUPER MARL PHYSICAL PROPERTIES

Rand Research Lab., Crowthorne (England).
 AUTHOR Marsh, A. D.
 449114 FID RM, 138 USGRDR6810
 1967 24p
 Rept No RRL-LR116

Abstract The report describes measurements of the surface area, reflection spectra and suction properties of Keuper Marl. The correlation of this physical properties with the mineralogical analysis, chemical analysis and classification tests of the soils is discussed.

Descriptors (-Clay, -Soil mechanics), Physical properties, Soils, Test methods, Statistical data, Adsorption, Clay minerals, Moisture, Great Britain

Identifiers Keuper Marl

PB-177 714 CFSII Prices PC A02/MF A01

CLIMATOLOGICAL STUDIES

Iowa State Univ of Science and Technology. Ames. Dept. of Agronomy

Final rept.
 AUTHOR Shaw, Robert H.
 4491A2 FID RM, 2C USGRDR6810
 15 May 67 70p
 Contract. Cwb-11160

Abstract The report summarizes the developments made on the prediction of soil moisture, pointing out the apparent solutions which have been made and problems which still must be considered. The different components of the prediction technique are briefly discussed. Figures from earlier reports are reproduced in some cases to add clarity to the results and discussion.

Descriptors (-Soil mechanics, Climatology), (-Moisture, Soil mechanics), Agriculture, Atmospheric precipitation, Drainage, Evaporation, Dehydration, Heat transfer, Evapotranspiration, Stresses, Meteorological parameters, Periodic variations, Statistical analysis, Solar radiation, Plants(Botany), Agriculture, Water supplies, Mathematical prediction

Identifiers Evaporimeters

PB-177 745 CFSII Prices PC A04/MF A01

STUDY OF EMBANKMENT SETTLEMENT AND STABILITY

Nebraska State Dept. of Roads Div. of Materials and Test.

Research Study

AUTHOR Salberg, J R

473281 114 RM, 13R USGRDR6808

15 Mar 67 37p

Rept No 63-11

Project HPR 115

Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract The design selected for stabilizing the embankment foundation required pore pressure measurements within the foundation soil during construction. In addition to pore pressure, the researchers measured settlement and horizontal displacements. Foundation soil samples were also taken and tested for shear strength. Generally, the strength of the foundation soil increased with consolidation and the engineers were able to maintain a stable condition by controlling the rate of embankment construction. The predicted amount of settlement (up to 2.75 feet) agreed closely with that measured (Author)

Descriptors (*Soils, Stability), (*Roads, Soil mechanics), Structural properties, Shear stresses, Statics, Statistical data, Physical properties, Sliding contacts, Mechanical properties, Lubrication, Drainage, Nebraska, Construction

Identifiers Embankments(Construction), Foundation soils

PG-177 461 CFSII Prices PC A03/MF A01

CHARACTERISTICS OF COMPACTED EMBANKMENTS

Utah State Dept. of Highways Research Section

Final rept

AUTHOR Van Houten, Frank C

439104 114 RM, 13R USGRDR6808

Aug 67 103p

Project HPR 115

Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract The purpose of this study was to provide data for establishing statistical parameters for percent compaction of compacted embankments using the present and latest techniques in testing methods and the standardized sandcone. The parameters are to be used in evaluating existing requirements and developing new specifications. Three different embankment projects were selected for testing by three different test methods. The results were analyzed to determine test statistical parameters normally used to evaluate quality of construction. The results indicated that the three test

methods may be used interchangeably with comparable results. Factors concerning selection of the testing method must depend on availability, economics, accessibility of work, speed of testing and volume of material (Author)

Descriptors (*Roads, Soil mechanics), (*Soil mechanics, Utah) Analysis of variance, Sampling, Densimeters, Civil engineering, Construction, Construction materials, Cost effectiveness, Experimental data, Moisture, Statistical analysis, Distribution theory

Identifiers Lane-Wells Road Logger, Nuclear moisture-density gauge

PG-177 488 CFSII Prices PC A06/MF A01

CHARACTERISTICS OF COMPACTED BASES AND SUBBASES

Utah State Dept. of Highways Research Section

Final rept

AUTHOR Nielson, Gary F

439103 114 RM, 13F USGRDR6808

Aug 67 86p

Project HPR 115

Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract Three Utah Highway Department Construction projects were selected to study the characteristics of compacted bases and subbases for the establishment of new statistical parameters. The projects were selected so that the measured characteristics would cover different field conditions. The research was conducted on the base and subbase courses as they were constructed under normal operating and control methods. Statistical parameters were established for the 3 methods for determining in place density now being used in the Utah Department of Highways, the Lane-Wells Road Logger, Nuclear Chicago's Portable Nuclear Moisture-Density gauge and the Sand Cone method. The sampling or measurements were made using random selection of the sampling units.

Descriptors (*Soil mechanics, Roads), Density, Analysis of variance, Statistical analysis, Mathematical analysis, Soils, Test equipment, Moisture, Standards, Sampling, Nuclear industrial applications, Utah

PG-177 469 CFSII Prices PC A05/MF A01

AN INVESTIGATION OF COMPACTION VARIABILITY FOR SELECTED HIGHWAY PROJECTS IN INDIANA

Purdue Univ., Lafayette, Ind. Joint Highway Research Project
 AUTHOR Williamson, T. G.; Yoder, Eldon J.
 4342114 Flg 13B, RM USGR06807
 Mar 67 116p
 Rept No 5
 Project C-36-67B
 Availability Original document in color until exhausted.
 Prepared in cooperation with Bureau of Public Roads,
 Washington, D C.

Abstract The area of study chosen for this project was compaction control of subbase and subgrade elements as used under rigid pavements. Three projects of each were selected for investigation in Indiana. The objective was (1) to gather data to determine what level of compaction was actually being achieved under present construction practices by studying the variability in compaction and the factors causing the variability; (2) to determine how a statistical quality control might be developed from these data. To assure a realistic estimate of the true level of compaction, one hundred field density tests were performed for each project by selecting ten units of construction of equal size and making five randomly replicated density tests in each. (Author)

Descriptors (*Roads, *Soil mechanics), Tables, Sampling, Moisture, Statistical analysis, Analysis of variance, Construction, Quality control, Test methods, Bibliographies, Earth handling equipment, Indiana, Density, Deposits

PR-177 453 CFSII Prices: PC A06/MF A01

QUANTITATIVE TERRAIN STUDY OF VTOL LANDING SITE DISTRIBUTIONS AND OF EFFECTS ON PENETRATION

Cornell Aeronautical Lab Inc Buffalo N Y (098300)

Final rept. 1 Jul 66-30 Jun 67
 AUTHOR Wood, W F.; Chung, H. L.; Lewandowski, G M.
 4082102 Flg 1B, 8F, RM USGR06802
 30 Jun 67 125p
 Rept No CAL VE 2703-D
 Contract AF 33(615)-7483
 Monitor ASD-TR 67-18

Abstract A VTOL site is assumed to require a ground slope of 10% or less and be clear of trees. Also there can't be boulders over 2 feet high or gullies deeper than 2 feet. Single sites, if square, should be 200 feet on a side and if circular 250 feet in diameter. Assault sites, if square, should be 1500 feet on a side and 2000 feet in diameter if circular. Probability distributions of distances to single and assault sites, based on a study of environmental literature, topographic maps and aerial photographs are

presented for Thailand, India, Nevada, Italy, Germany and Alaska. A VTOL site may be expected within a few miles in all but the most unfavorable environments. Sites located on residual soils would seldom be too soft for VTOL operations, but alluvial soils should be avoided when poorly drained. Prior knowledge of analogous situations, aerial photography and direct observation provide the best information for evaluating candidate sites. (Author)

Descriptors (*Aircraft landings, *Terrain), (*Vertical take-off planes, Aircraft landings), Distribution, Landing fields, Site selection, Probability, Maps, Soil mechanics, Aerial photography, Alaska, Thailand, India, Nevada, Italy, East Germany, West Germany, Trafficability, Penetration

AD 661 592 CFSII Prices: PC A06/MF A01

ANALYSIS OF ESTIMATED RIVER EXITING PERFORMANCE

Detroit Univ Mich Dept of Civil Engineering (402845)

Technical rept.

AUTHOR Sloss, D. A.; Baker, W. J.; Lassaline, D. M.; Miranda,

C. V. C. F. Fld 13J USGRDR6719

Jul 67 72p

Contract DA 20 113 AMC-09099(T)

Monitor LI 115

Abstract A previous study of river magnitude and frequency established river exiting as the primary problem for vehicles attempting to cross rivers. Analysis of the exiting problem indicated that the single most important parameter to be considered was the geometric form of the river bank. Evaluation of the probability of an M-113 exiting at each bank surveyed in the magnitude and frequency study was made by relating vehicle performance characteristics to bank descriptions; a determination of the probability of the vehicle exiting was then made on a GO or NO-GO basis. Since much of the environment was extremely severe with respect to M-113 capabilities, this evaluation was fairly straightforward. A numerical method, using a geometric severity to classify bank geometry, was then developed to permit a performance analysis to be conducted on a rational basis. (Author)

Descriptors (Amphibious vehicles, Performance(Engineering), (Rivers, Terrain), Soil mechanics, Analysis, Maneuverability, Probability, Numerical methods and procedures, Geometric forms, Armored vehicles, Passenger vehicles

Identifiers M 113 vehicles

AD 656 607 CFSTI Prices PC A04/MF A01

A COMPARISON OF CLAY CONTENTS DETERMINED BY HYDROMETER AND PIPETTE METHODS USING REDUCED MAJOR AXIS ANALYSIS

Illinois Univ., Urbana, Soil Mechanics Lab.

Soil Mechanics Series

AUTHOR Liu, Thomas K.; Odell, Russell T.; Etter, William

Thornburn, Thomas H.

363103 Fld 8M USGRDR6717

Feb 67 6p

Rept No SMS-71

Project SMS-12

Monitor 1R

Availability Hard copy available from Soil Science Society of America, Columbus, Ohio, \$3.00. Prepared in cooperation with Bureau of Public Roads, Washington, D. C. Published in Soil Science Society of America Proceedings v30 n6 p661 Nov-Dec 1966

Abstract Test results on the amount of <0.002 mm clay determined by hydrometer and pipette methods have been obtained from 155 duplicate soil samples, of which 48 are from Illinois and the remaining 107 are from soil survey reports published by the Soil Conservation Service in cooperation with 10 other States. Correlation analysis of the data yielded a highly significant coefficient of 0.965. The best-fit line between the clay contents determined by these two procedures was obtained by the reduced major axis method of statistical analysis. In this statistical method, neither one of the two variables is considered as the dependent variable and the reduced major axis is determined by minimizing the sum of the areas of triangles formed by lines drawn from each point to the best-fit line and parallel with the X and Y axes. The relationship between the clay contents is expressed by the equation $y = 0.63 + 1.008x$, in which X and Y represent the pipette and hydrometer clay content, respectively. Clay contents determined by these two methods are quite similar, although there is a tendency for hydrometer analyses to be slightly higher. Relationships between data from Illinois and other States are very similar. The slightly poorer correlation between clay contents of A horizons as compared to other horizons may have been caused by organic matter which was not removed in hydrometer analysis. (Author)

Descriptors (Clay, Soil mechanics), (Chemical analysis, Descriptors), Pipettes, Soils, Particle size, Equations, Statistical analysis, Tables, Errors, Regression analysis, Tests

PB 174 953 CFSTI Price MF A01

QUALITY CONTROL ANALYSIS. PART II. SOIL AND AGGREGATE BASE COURSE

Louisiana Dept. of Highways Research and Development Section

Research rept
AUTHOR Shah, S. C.
3002FA Fld 13C, 13R USGRDB6706
Jul 66 42p
Rept No. RR 23
Project 63 1G
Monitor 18
Research supported in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract The report concerns quality control analysis of highway construction materials. It deals with the statistical evaluation of results from several construction projects to determine the basic pattern of variability with respect to certain base course characteristics. On the basis of this variability, numerical limits have been established using statistical quality control techniques. The analysis indicated (1) that the frequency distribution of historical data for most of the characteristics tend to follow normal distribution; (2) that the variability for compaction and thickness is considerably different for different contractors; (3) that this variability for compaction is more pronounced for cement stabilized aggregate base course than for stabilized soil cement course; (4) furthermore, that for raw or unstabilized aggregate base course, the variability is less than that for stabilized base course. (Author)

Descriptors (+Construction materials, Quality control), Roads
, Soils, Statistical analysis, Soil mechanics, Specifications,
Identifiers Aggregates(Materials)

PR-173 025 CFS11 Prices PC A03/MF A01

A STATISTICAL ANALYSIS OF EMBANKMENT COMPACTION

California State Div of Highways, Materials and Research Dept

Research rept.
AUTHOR Sherman, George B.; Watkins, Robert O.; Prysock, R. J.
H
3001G1 Fld BM, 13R USGRDB6706
Jan 67 80p
Rept No. M/R 631133 3
Monitor 18
Presented at the Annual Meeting of the Highway Research Board (46th), January 1967. Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract The study statistically examined the distribution of percent relative compaction obtained with current compaction control procedures used in Calif. on three embankment projects where the soils varied from homogeneous to very heterogeneous material. Analysis of percent relative compaction results revealed average values of 92.9, 90.5 and 93.5 percent with standard deviations of 2.4, 3.1 and 5.5 percent respectively. The greatest dispersion in results was found with the heterogeneous soil. The distribution curves of percent relative compaction agreed generally with those reported by the U. S. Bureau of Reclamation and the AASHTO Road Test. Factors contributing to the dispersion of percent compaction were found to be testing procedure, the soil, and in the compaction process. Curves are presented which provide a comparison of field control test results and randomly sampled test results. A partial review of problems expected to be encountered in the development and use of purely statistical specifications is presented. (Author)

Descriptors (+Soil mechanics, Roads), Statistical analysis, Graphics, Foundations(Structures), California, Soils, Specifications

PB 173 909 CFS11 Prices PC A05/MF A01

SHEAR PHENOMENA IN GRANULAR RANDOM PACKINGS

Princeton Univ N J School of Engineering and Applied Science
(000000)

Scientific rept. no. 2
AUTHOR: Herbst, Thomas F.; Wintarkorn, Hans F.
186313 USGRDRG518
30 May 65 2p
Rept No: SERP-2
Contract: AF19 628 2414
Project: 7628
Task: 762804
Monitor: AFCRL-65-370
See also AD-436 458

Abstract: The results are presented of a research project on the mechanical resistance properties and behavior in the deformation of macro-particle systems in the light of the theory of the macro-meritic solid, liquid and solution states. A critical analysis and appraisal is made of what goes on in the shear process as a result of design and working features of the test apparatus, as well as of intrinsic properties of the granular system that is under test. The results of this analysis are utilized for the design of a semiautomatic direct shear tester. The historical development of our understanding of the shear process in molecular and macro-meritic systems is traced and an indication is given of how thermodynamic and kinetic-statistical concepts can be fruitfully employed in this continued quest.

Descriptors: (-Soils, Shear stresses), (-Shear stresses, Soil mechanics), Mechanical properties, Sand, Gravel, Solids, Liquids, Solutions, Internal friction, Thermodynamics, Deformation, Statistical analysis, Test methods

AD-619 398 CFSTI Prices: PC A02/MF A01

UNDERGROUND EXPLOSION THEORY

California Univ Berkeley (000000)
AUTHOR: Morrey Jr, C. B.; Pinney, Edmund; Stoneham, R. G.; Chamber, P. L.; Lakness, R. M.
1455K2 USGRDR
Apr 52 2
Contract: Nonr22204
Project: NR340 040, 1 9
Monitor: WT-369
Rept. on Operation JANGLE, Nevada Proving Grounds, Oct-Nov 51.
Declassified 11 Jan 59.

Abstract: Contents: Theoretical studies of the shock wave; Application of the Kirkwood-Brinkley method to the theory of underground explosions; Notes on surface and underground explosions; Predictions for the underground shot.

Descriptors: (-UNDERGROUND EXPLOSIONS, MATHEMATICAL ANALYSIS), (-NUCLEAR EXPLOSIONS, UNDERGROUND EXPLOSIONS), (-EXPLOSIONS, THEORY), SURFACE BURST, SOILS, SOIL MECHANICS, STRAIN (MECHANICS), STRESSES, STATISTICAL MECHANICS, INTEGRAL EQUATIONS, MATRIX ALGEBRA

Identifiers: JANGLE OPERATION

AD-608 885 CFSTI Price: PC A02

NSM5 pt-13 Oct 1959.

A BASIC STUDY OF THE NUCLEAR DETERMINATION OF MOISTURE AND DENSITY

California State Div. of Highways.

OS84K3 Fld. RM. 13B, 18D USGRDR4120

Nov 65 152p

Rept No. MR-225928; STS 0421

Monitor 18

Prepared in cooperation with the Bureau of Public Roads, Washington, D. C.

Abstract: A laboratory project was undertaken to study factors affecting the results obtained by using nuclear gauges to determine soil moisture and density. Both backscatter and transmission type nuclear soil density gauges were studied. The study consisted of conducting readings on laboratory compacted soil samples, using six different soil types. Tests indicate that the compacted soil samples had a soil density variation with a standard deviation of about two pounds per cubic foot. The density calibration curves obtained by nuclear methods indicate a standard deviation of 4 1/2 pounds per cubic foot for the backscatter, and 2 1/2 pounds per cubic foot for the transmission type gauges. By collimation of the source the standard deviation of the backscatter type gauge calibration was reduced to 2 1/2 pounds per cubic foot. The readings obtained with backscatter type gauges were very sensitive to surface roughness while the transmission type gauges were only slightly affected by surface roughness. The volume of the soil affecting the nuclear readings was determined to be about 0.05 cubic foot for both the backscatter and transmission type gauges. There were indications that the transmission gauges are more desirable for determining soil density than the backscatter type gauges. The moisture readings were much less affected by the various items, such as surface roughness, than the density readings were. The standard deviation of the moisture readings was about one and one-half pounds of water per cubic foot.

Descriptors: (*Soil mechanics, Test methods), (*Radiation measurement systems, Soil mechanics), Probes, Effectiveness, Densimeters, Hygrometers, Density, Moisture, Measurement, Statistical distributions, Surface properties, California

PB-172 991 CFSII Prices PC A08/MF A01

A STATISTICAL STUDY OF SOIL SAMPLING

Illinois Univ., Urbana (175 750)

AUTHOR Thorburn, Thomas H., Larsen, Wesley R

OS81B4 Fld. RM. 13B USGRDR4119

Oct 59 14p

Rept No. Soil Mechanics Ser. 2

Monitor 18

Pub. in Journal of the Soil Mechanics and Foundations Division, in Proceedings of the American Society of Civil Engineers

Abstract: A study was undertaken to determine the number of samples needed to obtain reasonable correlations between pedologic soil types and their engineering properties. Data from four DeWitt County soils give a quantitative indication of the value of pedologic information in planning, designing and constructing highways and airports in Illinois. (Author)

Descriptors: (*Soils, Sampling), Soil mechanics, Statistical analysis, Liquids, Plasticity, Clay, Statistical tests, Roads, Airports, Illinois

PB-172 861 CFSII Prices PC A02/MF A01

ENGINEERING INDEX PROPERTIES OF SOME SURFICIAL SOILS IN ILLINOIS

Illinois Univ., Urbana. (175 750)

Illinois Cooperative Highway Research Program Series no. 31.

AUTHOR: Liu, Thomas K.; Thornburn, Thomas H.

0575H2 FID 8M, 138 USGRDR4119

1966 147p

Rept No Bulletin-477

Project IHR-12

Monitor: 18

Abstract: From 120 sites in nine different counties in Illinois, soil samples were obtained with an auger from the A, B and C horizons of ten soil types of the Humic-Gley great soil group. These samples were subjected to classification tests. On the basis of statistical analysis of six index properties (liquid limit, plasticity index, percentages passing sieve nos. 20, 40 and 200, and per cent clay < 2 microns), it was found that the variability of each soil type depends on not only the character of the parent material but also the profile characteristics defined by the pedologist. Furthermore, from the engineering standpoint, these soil types cannot be grouped together by using the geological origin of the parent material alone; they can, however, be grouped together by the character of parent material. The grain size test results obtained by sieve and hydrometer analyses indicate that approximately 60% of the samples tested have the modal texture of the typical soil types according to the United States Department of Agriculture Textural Soil Classification System. (Author)

Descriptors: (*Soil mechanics, Classification), (*Illinois, Soils), Statistical analysis, Standards, Sampling, Plasticity, Particle size, Clay, Indexes

PB-172 865 CFSII Prices: PC A07/MF A01

STATISTICALLY CONTROLLED ENGINEERING SOIL SURVEY

Illinois Univ., Urbana. (175 750)

Illinois Cooperative Highway Research Program Series no. 37.

AUTHOR: Liu, Thomas K.; Thornburn, Thomas H.

0575F4 FID 8M, 138 USGRDR4119

Jan 65 15p

Rept No: Soil Mechanics Ser-9

Monitor: 18

Abstract: It has been recognized that making soil borings at regular intervals along the proposed line of right-of-way for a transportation route is not the most satisfactory procedure for an engineering soil survey, since the relative degree of variations in the properties of natural soil units encountered has not been considered. The paper proposes an approach to

the conduct of a detailed soil survey for transportation facilities based on the use of simple statistics. The suggested method distributes the number of borings in accordance with the size of area along the proposed alignment occupied by each type of surficial soil as well as with its relative variability in engineering properties. (Author)

Descriptors: (*Soils, Sampling), (*Roads, Soils), Statistical analysis, Distribution, Soil mechanics, Illinois

PB-172 863 CFSII Prices: PC A02/MF A01

ENGINEERING SOIL REPORT, LIVINGSTON COUNTY, ILLINOIS

Illinois Univ., Urbana. Engineering Experiment Station. (176 050)

AUTHOR: Thornburn, Thomas H.; Morse, Robert K.; Liu, Thomas K.

0575A4 FID 8M, 138 USGRDR4119

26 May 65 166p

Rept No EES-Bull-482; 0143

Monitor: 18

Prepared in cooperation with Bureau of Public Roads, Washington, D. C.

Abstract: The report shows the relation between pedologic soil types, parent materials and engineering properties. By using the information contained in this report, an engineer can predict the engineering properties of the soils of any area in Livingston County with a fairly high degree of accuracy. Test data obtained from sampling sites in the county are summarized by soil types on data sheets. In addition, each data sheet contains a description of each soil profile, its average characteristics and an engineering analysis. The geology and pedology of the county are described as well as various statistical concepts used in making comparisons of the soil mapping units by grain size, plasticity characteristics, and moisture-density relationships. The uses that can be made of the tabulated data are discussed with regard to preliminary planning for highway locations, preliminary reconnaissance, detailed surveys and construction problems. The report is designed to be used in conjunction with maps previously published as a part of a University of Illinois Agricultural Experiment Station report entitled, Livingston County Soils.

Descriptors: (*Soil mechanics, Illinois), (*Illinois, Soils), Distribution, Statistical analysis, Particle size, Physical properties, Geology

PB-170 870 CFSII Prices: PC A08/MF A01

DISTRIBUTION AND ENGINEERING PROPERTIES OF NORTH CAROLINA SOILS

North Carolina State Univ., Raleigh. School of Engineering (259 350)

Final rept

AUTHOR: Wahls, H. E.; Buchanan, W. T.; Futrell, G. E.; Lucas, S. P.

057382 Fld: 6M, 13B USGRDR4119
Jun 64 128p

Rept No: 0192

Project: ERD-110-W

Monitor: 18

Prepared in cooperation with North Carolina State Highway Commission and Bureau of Public Roads, Washington, D. C.

Abstract: A study was made of the feasibility of correlating engineering properties and classification systems with existing pedological and geological soil classification systems. The residual soils of a 14-county area in the North Carolina Piedmont were used for the study. Classification and compaction test data are presented for 20 predominant geological soil series in the study area. Statistical means and standard deviations of the test results are given for both the B and C horizons of each series. The probable reliability of each mean value as a measure of the true mean for the population is also given. Correlations among various properties of individual samples were studied. Linear relations are presented for plasticity index versus liquid limit, plasticity index versus clay fraction and dry density versus liquid limit. Although measurements of penetration resistance are also presented for soils in situ and samples compacted and soaked, the report concludes that no relation was found for penetration resistance and any other soil property. (Author)

Descriptors: (*Soil mechanics, North Carolina). (*North Carolina. Soils). Distribution. Mechanical properties. Statistical analysis. Plasticity. Clay. Penetration. Particle size

PB-172 893 CFSII Prices PC A07/MF A01

ON THE STATISTICAL PROPERTIES OF THE GROUND CONTOUR AND ITS RELATIONS TO THE STUDY OF LAND LOCOMOTION

Army Tank Automotive Center, Warren, Mich. Land Locomotion Lab.

AUTHOR: Bogdanoff, J. L.; Kozin, F.

049441 Fld: 8M USGRDR4115

Mar 62 42p

Rept No 7823; LL-78

Project: 5510 11-822, DA-570-05-001

Monitor: 18

Abstract: In this report statistical models of the ground surface contour are considered along with possible forms for the two dimensional power spectral density. The advantages and disadvantages of the models are pointed out. Perturbations in the power spectral density of the surface are studied to determine the magnitude of their effect on an optimum criterion chosen for vehicle parameter studies. Finally, the power spectral densities from an actual ground surface survey are presented and discussed.

Descriptors: (*Statistical analysis. Soil mechanics). (*Soil mechanics. Statistical analysis). Trafficability. Roads. Vehicles. Terrain

AD-402 334 CFSII Price: PC A03

ON THE STATISTICAL ANALYSIS OF LINEAR VEHICLE DYNAMICS

Army Tank Automotive Center, Warren, Mich. Land Locomotion Lab.
 Author Bogdanoff, J. L.; Kozin, F.
 0492J3 Fld: 8M, 13F USGRDR4115
 Mar 62 59p
 Rept No 7824, LL-73
 Project 5510 11-822, DA-570-05-001
 Monitor 18

Abstract: Statistical analyses of the dynamics of some two-dimensional linear vehicles traveling on a rough track are performed to determine the influence on two aspects of vehicle ride of a set of parameters which include wheel base length, idealized tire imprint length, speed, and damping constant. It is assumed that the vehicles move with constant horizontal velocity on a second order, weakly stationary and mean square continuous random track with contact maintained at all times between the idealized tires and the track. The two aspects of vehicle ride used as measures of the ride roughness are peak value of power spectral density and variance of frame acceleration, the frame acceleration being either vertical at the c. g. of frame, vertical at the point over idealized wheel, or angular (pitching). For the same speed, damping, power spectral density for the track, and two particular vehicles, the idealized tire imprint length was a relatively unimportant parameter over a fairly large range of values. In the other hand, one parameter which included the wheel base length was found to be important under the same conditions. Four sets of parameter values were found which at the same speed produced best or optimal rides for vertical acceleration at the frame c. g. and over the wheel, depending upon which measure of ride roughness was employed. The influence of speed was then examined on vehicles having these sets of parameter values. In all cases, increasing speeds produced sharp increases in ride roughness. (Author)

Descriptors: (*Statistical analysis, Soil mechanics), (*Vehicles, Dynamics), Linear systems, Trafficability, Modelling theory

AD 402 391 CFSI Price PC A04

A PERFORMANCE INVESTIGATION OF PILE DRIVING HAMMERS AND PILES

Michigan State Highway Commission, Lansing

Final rept
 0405J3 Fld: 17B, 13I, 13M USGRDR6611
 Mar 65 342p
 Rept No 0112
 Project 61 F 60
 Prepared in cooperation with Bureau of Public Road, Washington, D. C., Michigan Road Builders Association, Wayne State Univ. and Representative Hammer Manufacturers. See also

PB-169 840, PB-169 841.

Abstract: An experimental study of field pile driving operations was made in Michigan which tested air-, steam-, and diesel-powered pile driving hammers on piling of various configurations at sites selected to represent a varied range of soil conditions. Hammer performance was recorded by conventional methods and also through electronic transducers for experimental determination of force, acceleration, and deflection. Resulting data were evaluated and compared in terms of blow count, pile penetration rate, and 'enthrup' (net energy delivered to the pile top). Selected piles also underwent extensive static loading tests. From data obtained, measured pile supporting capacity was correlated with that estimated from soil boring data secured prior to pile driving. Eleven common dynamic pile formulas were analyzed in light of this correlation of estimated and measured pile capacity. Guidelines are presented for selection of hammers and for good pile driving practice. (Author)

Descriptors: (*Hammers, Performance(Engineering)), (*Structural parts, Foundations(Structures)), (*Roads, Civil engineering), Michigan, Soil mechanics, Experimental data, Statistical analysis, Machine tools, Pipes, Loading(Mechanics), Soils, Force(Mechanics), Penetration

PB-169 839 CFSI Prices: PC A15/MF A01

APPENDIX D: COMPENDEX (FILE 8)

1293015 ID NO. E18207063315

SLOPE SAFETY PREDICTION UNDER STATIC AND SEISMIC LOADS.

A. G. Kouskous, Dimitris Asanaka, Akira

Rensselaer Polytech Inst., Troy, NY, USA

Appl. Geotechn. Eng. Div. V 180 n G15 May 1982 p 713-729

CODEN: AGERE6

ISSN 0003-6805

A simplified procedure permitting the determination of the probability of failure of natural or man-built slopes under static and seismic conditions is presented. Limit equilibrium is expressed as a function of the soil strength parameters (random variables), the numerical values of which are obtained from strength tests under drained conditions. Seismic load is introduced in terms of the maximum horizontal acceleration expected to occur at the site of the slope. The procedure is applied in a case study to predict the probability of failure of a slope during an earthquake. 22 refs.

DESCRIPTORS: (SOIL MECHANICS; Mathematical Models). (STRUCTURAL DESIGN; Safety Factor). (STRUCTURAL ANALYSIS; STABILITY). EARTHQUAKE RESISTANCE.

IDENTIFIERS: SLOPE STABILITY; SEISMIC LOADS

CARD ALERT: 483, 931, 921, 408, 484

1293016 ID NO. E18207063315

NEW STABILITY METHOD FOR EMBANKMENTS ON CLAY FOUNDATIONS.

Chapuis, R. P.

Univ. of Montreal, Montreal, Que., Can.

Can. Geotech. J. 19 n 1 Feb 1982 p 44-48 CODEN: CGJGJH

ISSN 0008-3674

The proposed method makes use of a conventional total stress analysis, corrected to take into consideration the preconsolidation pressure and the undrained shear strength profiles. Good results are obtained for seven well documented cases of embankment failures, the data of which allow a direct application of the proposed method. Many other failure cases, for which the published data are insufficient to allow such a direct application, are analyzed on a statistical basis as discussed in the paper. 1. Bjerrum's correction appears as a particular case. Refs.

DESCRIPTORS: (EMBANKMENTS; Stability). (CLAY; Foundations); SOIL MECHANICS.

CARD ALERT: 483, 405

1293315 ID NO. E18207063315

COMPACTIVE PRESTRESS IN SHALES.

Lovell, C. William; Witsman, Gary R.

Purdue Univ., West Lafayette, Indiana, USA

Bull. Assoc. Eng. Geol. V 18 n 3 Aug 1981 p 297-308 CODEN: AGERPU

ISSN 0004-5691

Shale samples were compacted from shale aggregate by a California kneading compactor. Conventional oedometer tests

were performed on a group of as-compacted samples to investigate the compressibility behavior and the compactive prestress induced in the samples. Statistical analysis of the accumulated test data permitted a descriptive model to be developed for the estimation of the compactive prestress for samples of compacted New Providence shale. 25 refs.

DESCRIPTORS: SHALE; (SOIL MECHANICS; Mathematical Models); STATISTICAL METHODS.

CARD ALERT: 482, 483, 931, 921, 922

1293047 ID NO. E18207063047

ENERGY DISSIPATION AND SEISMIC LIQUEFACTION IN SANDS.

Davis, R. O.; Berrill, J. B.

Univ. of Canterbury, Christchurch, NZ

Earthquake Eng. Struct. Dyn. V 10 n 1 Jan-Feb 1982 p 59-68

CODEN: LUJEEB

ISSN 0375-6297

A statistical representation of seismic liquefaction is advanced based on the postulate that pore water pressure increases are proportional to the dissipated seismic energy density. The representation, based on approximately fifty case histories, relates the pore pressure increase to earthquake magnitude, distance to center of energy release, initial effective overburden stress and standard penetration value. The model may be used for analysis of seismic liquefaction risk. An example analysis for the 'South of Market Zone' in San Francisco is carried out in relation to earthquakes on the San Andreas fault. 24 refs.

DESCRIPTORS: SAND AND GRAVEL; EARTHQUAKES; SOIL MECHANICS; DYNAMICS; STATISTICAL METHODS; LIQUEFACTION

IDENTIFIERS: SOIL DYNAMICS; LIQUEFACTION

CARD ALERT: 483, 931, 922

1274254 ID NO. - E18207062944
PREDICTION OF SHEAR BEHAVIOR OF JOINTS USING PROFILES.

1274254 ID NO. - E18207062944
 Dight, P. M.; Chiu, H. K.
 Monash Univ., Clayton, Victoria, Aust
 Int J Rock Mech Min Sci Geomech Abstr v 18 n 5 Oct 1981 p 369-366 CODEN IRMGRI
 The stress path for a series of constant stiffness direct shear tests has been predicted using the B Ladanvi and G. Archambault variable dilation shear equation. The tests were performed on highly weathered mudstone abutting concrete, to simulate side resistance socketed pile performance. The joint profiles have been analyzed statistically to determine relevant properties for use in a simple triangular model for the purposes of this prediction. The proposed method has been tested in the prediction of a side resistance socketed pile load test. Remarkably good agreement is achieved. 28 refs.
 DESCRIPTORS: *ROCK MECHANICS. (ROCK, Shear Strength). (PILES Testing).
 IDENTIFIERS: ROCK JOINTS
 CARD ALERT: 483, 502, 421

1274254 ID NO. - E18206054264
SHEARING BEHAVIOR OF COMPACTED CLAY AFTER SATURATION.

1274254 ID NO. - E18206054264
 Lovell, C. W.; Johnson, J. M.
 Purdue Univ., West Lafayette, Indiana, USA
 ASTM Spec Tech Publ 740. Lab Shear Strength of Soil, Chicago, Ill, USA, Jun 25 1980. Publ by ASTM, Philadelphia, Pa, USA, 1981 p 277-29 CODEN ASTTAB
 ISBN 0066-0558
 The study described was made to ascertain the relationships among the compaction conditions (dry density, moisture content and compaction energy) and the shearing behavior after saturation for a kneading compacted, highly plastic clay. The effective stress strength and pore pressure parameters were evaluated for various compaction conditions through the performance of consolidated undrained triaxial tests with pore water pressure measurement at a constant rate of strain. Statistical analyses were performed to construct prediction equations based on the compaction variables for percent volume change due to saturation and consolidation. 19 refs.
 DESCRIPTORS: *SOILS. *Compaction. CLAY. (SOIL MECHANICS, Mathematical Models). STATISTICAL METHODS. (MATERIALS TESTING, Compaction Tests).
 CARD ALERT: 483, 931, 921, 922, 421

1274251 ID NO. - E18206054251
PROBABILISTIC ANALYSIS OF DEPOSIT LIQUEFACTION.

1274251 ID NO. - E18206054251
 Fardis, Michael N.; Veneziano, Daniele
 MIT, Cambridge, Mass, USA
 ASCE J Geotech Eng Div v 108 n GF3 Mar 1982 p 395-417
 CODEN AJGEB6
 ISBN 0093-6405
 A probabilistic methodology is presented for liquefaction analysis of horizontally layered sand deposits, subjected to

vertically propagating seismic S waves. Three different deposit models are developed. The models are effectively one-dimensional and differ in that they include or neglect pore pressure diffusion and stiffness reduction due to pore pressure buildup. Conclusions are drawn about sensitivity of the results to different assumptions about the mechanical behavior of the deposit, about the effect of vertical and horizontal variations of soil properties, and about the importance of statistical variability of the response spectrum at bedrock given peak acceleration. An approximate procedure is proposed for the calculation of the probability of almost complete layer liquefaction. 13 refs.
 DESCRIPTORS: (*SOIL MECHANICS, *Mathematical Models). SAND AND GRAVEL. (SOILS, Pore Pressure). SEISMIC WAVES. PROBABILITY

1264429 ID NO. - E18205044429
PROBABILITY THEORY IN GEOTECHNICS - AN INTRODUCTION.

1264429 ID NO. - E18205044429
 Smith, G. N.
 Heriot-Watt Univ., Edinburgh, Scotl
 Ground Eng v 14 n 7 Oct 1981 p 29-34 CODEN: GROEAV
 ISSN 0017-4653
 The article investigates the feasibility of the use of first order second moment methods in the determination of the probability of failure of geotechnical structures. It discusses the theory underlying the first order second moment method evaluation of safety factors. System failure boundaries, and computational methods. Several examples are included to illustrate the calculation procedures.
 DESCRIPTORS: (*SOIL MECHANICS, *Design). (PROBABILITY, Failure). (FOUNDATIONS, Design). (ROCK MECHANICS, Design). IDENTIFIERS: LIMIT STATE DESIGN. GEOTECHNICAL STRUCTURES
 CARD ALERT: 483, 931, 921, 484, 922

1254556 ID NO - E18204034556
USE OF PORE SIZE DISTRIBUTION PARAMETERS TO PREDICT PERMEABILITY.
 Garcia-Benquerena, I.; Lovell, C. W.; Wood, L. E.
 Purdue Univ., West Lafayette, Indiana, USA
 Proc Int Conf Soil Mech Found Eng 7th; v 2, Meas. Sel and
 Use of Des Parameters in Geotech. Eng., Brighton, Engl., Sep
 1979. Publ by Br Geotech Soc., London, Engl., 1979 p 49-56
 CODEN: ESMF49

Parameters of pore size distribution are shown to correlate well with experimental values of permeability for compacted mixtures of silt and kaolin. Of the various permeability relations examined, a simple probabilistic version of the variable diameter capillary tube model seemed to be slightly superior. Compacted soils are typically bimodal in their pore size distributions, with the smaller mode representing the spaces within coarse grains and clay aggregations and the larger mode being caused by pores between these grains and aggregations. Permeability depends strongly on the larger interaggregate pores. Fortunately, it is these same pores which are affected by the compaction variables. With a sufficient water content and compactive effort, it is possible to nearly eliminate the larger pores, and thus to sharply reduce permeability. Refs.

DESCRIPTORS: (*SOILS, *Permeability), (POROUS MATERIALS, Analysis), PROBABILITY, SOIL MECHANICS,
 IDENTIFIERS: PORE SIZE DISTRIBUTION
 CARD ALERT: 483, 922, 423

1254533 ID NO - E18204034533
PREDICTION OF SUBGRADE MOISTURE CONDITIONS.

Haupt, F. J.
 CSIR, Pretoria, S Afr
 Proc Int Conf Soil Mech Found Eng 10th, v 1, Stockholm, Swed., Jun 15-19 1981. Publ by A. A. Balkema, Rotterdam, Neth., and Salem, NH, USA, 1981 p 149-156 CODEN: PCSMB2
 In 1973 an extensive road survey was carried out in the Transvaal, South Africa, that resulted in a mass of information that was subsequently analyzed statistically to arrive at conclusions as to the most important factors affecting the moisture regime and to produce empirical prediction techniques applicable to southern Africa conditions. The analysis included linear and non-linear regressions and the development of models containing only selected parameters. The prediction accuracy of each model is given, together with an indication of the climatic areas in which these models are applicable. The terms 'left double quotes characteristic maximum and minimum moisture content' and 'right double quotes' are defined as those moisture contents which have only a specified chance of being exceeded or ever reached respectively. It is proposed that these moisture contents be used in design. Refs.
 DESCRIPTORS: (*SOILS, *Moisture Determination), (SOIL MECHANICS, Mathematical Models), STATISTICAL METHODS,
 CARD ALERT: 483, 922

1254513 ID NO - E18204034513
LABORATORY TESTING ON PIPING.
 de Wit, J. M.; Sellmeijer, J. B.; Penning, A.
 Delft Soil Mech Lab, Neth
 Proc Int Conf Soil Mech Found Eng 10th, v 1, Stockholm, Swed., Jun 15-19 1981. Publ by A. A. Balkema, Rotterdam, Neth., and Salem, NH, USA, 1981 p 517-520 CODEN: PCSMB2
 The piping mechanism is complicated and an adequate fundamental description has not yet been presented. Normally applied design criteria, in general, are based on statistical methods. Another approach is to find a suitable criterion by laboratory testing on a scale model. At the Delft Soil Mechanics Laboratory an extensive investigation is being carried out on models of dams on permeable foundations. In this approach the determination of scale rules between model and prototype becomes essential. Measured pore pressures showed a good agreement with calculations by the Laplacean equation for steady flow. Moreover it appeared that the pore pressures in the area sensitive to piping are equal in models of different scales provided that the sensitive area has the same geometry in these models.
 DESCRIPTORS: (*SOILS, *Erosion), (MODELS, Testing), (FLOW OF WATER, Porous Materials), (DAMS, Seepage),
 IDENTIFIERS: INTERNAL EROSION, PIPING
 CARD ALERT: 483, 631, 441

125445G ID NO.: E18204034456
HOW RELIABLE ARE PRESENT METHODS OF SLOPE FAILURE PREDICTION?

Grivas, D. A.
Reinseleer Polytech Inst., Troy, NY, USA
Proc Int Conf Soil Mech Found Eng 10th, v 3, Stockholm, Swed, Jun 15-19 1981, Publ by A. A. Balkema, Rotterdam, Neth, and Salem, NH, USA, 1981 p 427-430 CODEN: PCSMB2
The paper reports on a study to provide a systematic description of the parameters that constitute the input to slope stability analysis; to examine the reliability of conventional slope failure prediction; and to achieve the above through a case study involving the assessment of the safety of an embankment slope located in western New York. Results are presented of a statistical analysis of a large number of soil data obtained during a comprehensive investigation of the site of the embankment. The safety of the slope is measured in terms of its probability of failure, and the reliability of conventional procedures is investigated through a relation between the latter and the factor of safety. Finally, results (in the form of nomographs) are presented and conclusions are drawn.
DESCRIPTORS: (*SOIL MECHANICS, *Stability), FAILURE ANALYSIS (EMBANKMENTS, Failure), NOMOGRAMS.
IDENTIFIERS: SLOPE STABILITY, FACTOR OF SAFETY
CARD ALERT: 483, 931, 922

125444B ID NO.: E1820403448
INFLUENCES ON THE PROBABILITY OF FAILURES OF SLOPES.

Bergstad, Frelberg, E. Ger
Proc Int Conf Soil Mech Found Eng 10th, v 1, Stockholm, Swed, Jun 15-19 1981, Publ by A. A. Balkema, Rotterdam, Neth, and Salem, NH, USA, 1981 p 127-130 CODEN: PCSMB2
On the basis of O. K. FROMLICH's method, a stochastic variant is represented to express the static stability of slopes by probabilities of failure. Cohesion and the coefficient of friction are random variables. The influence of correlations between the shearing parameter and assumption of normal, equal and empiric distribution respectively of these parameters on the probability of failure is shown in an example.
DESCRIPTORS: (*SOIL MECHANICS, *Stability), FAILURE ANALYSIS (PROBABILITY, SLOPE STABILITY)
IDENTIFIERS: SLOPE STABILITY
CARD ALERT: 483, 931, 922

125444S ID NO.: E1820403445
SHORT-TERM RELIABILITY OF SLOPES UNDER STATIC AND SEISMIC CONDITIONS.

Asakura, Akira; Athanasios-Grivas, Dimitri
Transp. Res. Rec. 809 1981 p 64-70 CODEN: TRREDM
ISSN 0361-1981
A simplified probabilistic approach to the determination of

the short-term reliability of clayey slopes under static and seismic conditions is presented. The uncertainties associated with the undrained strength of soil and its spatial variation and the analytic procedure used to assess the safety of the slope are considered, and probabilistic tools are introduced for their description and amelioration. 11 refs.

DESCRIPTORS: (*SOIL MECHANICS, *Mathematical Models), (GEOPHYSICS, Seismic), PROBABILITY, CLAY.
IDENTIFIERS: SLOPE STABILITY
CARD ALERT: 483, 931, 921, 481, 484

125444A ID NO.: E1820403444
DYNAMIC DESIGN PHILOSOPHY IN SETTLEMENT PREDICTION.

Matsuo, M.; Asakura, A.
Nagoya Univ, Jpn
Proc Int Conf Soil Mech Found Eng 10th, v 1, Stockholm, Swed, Jun 15-19 1981, Publ by A. A. Balkema, Rotterdam, Neth, and Salem, NH, USA, 1981 p 195-198 CODEN: PCSMB2
An observational procedure of settlement is estimated through developed, in which future settlement is estimated through identification of unknown soil conditions using observation of settlement behavior at early stages of consolidation. The proposed method has been judged to have high accuracy through examination of case records obtained from reclaimed land on soft clay deposits in Japan. A probabilistic description of the accuracy of settlement prediction is also provided, and the reliability-based design of settlement problems is shown to be possible based on the proposed method.
DESCRIPTORS: (*SOIL MECHANICS, *Consolidation), LAND RECLAMATION, SUBSIDENCE, PROBABILITY.
CARD ALERT: 483, 931, 922

1254432 ID NO. E18204074442
MEASUREMENT, SELECTION AND USE OF DYNAMIC SOIL PROPERTIES IN DESIGN.
Michalopoulos, A. P.; Hansen, K. R.; Raynaud, D. A.; Arias, R. P.

D'Appollonia Consult Eng Inc., Brussels, Belg
Proc. Eur. Conf. Soil Mech. Found Eng. 7th, v 2, Meas., Sel and Use of Des Parameters in Geotech Eng., Brighton, Engl., Sep 1979. Publ by Br Geotech Soc., London, Engl., 1979 p 257-260
CODEN ESMFAG
During the past several years the authors have conducted cross-hole investigations at twenty different soil/rock sites in various countries. The design parameters obtained from which are usually employed to develop dynamic soil-structure interaction parameters. The authors have evaluated the probable variation in soil properties obtained from field and laboratory measurements, by performing statistical analyses employing randomly generated values of the soil input parameters falling between limits of plus and minus one standard deviation of the mean values. The results indicate that a considerable reduction of the sensitivity factor accounting for the effects of inhomogeneities in soil properties and imperfections in analytical techniques, could be justified when a realistic variation of soil input parameters is considered.
DESCRIPTORS: SOIL MECHANICS, DYNAMICS, ROCK MECHANICS, FOUNDATIONS, Soil-Structure Interaction.
IDENTIFIERS: DYNAMIC PROPERTIES
CARD ALERT: 483, 931

1254431 ID NO. E18204034431
RELIABILITY APPROACH TO THE DESIGN OF SOIL SLOPES.
Athanasou Grivas, D.; Harr, M. E.
Rensselaer Polytech Inst., Troy, NY, USA
Proc. Eur. Conf. Soil Mech. Found Eng. 7th, v 1, Meas., Sel and Use of Des Parameters in Geotech Eng., Brighton, Engl., Sep 1979. Publ by Br Geotech Soc., London, Engl., 1979 p 95-99
CODEN ESMFAG
Observed numerical values of soil strength parameters and the randomness associated with the phenomenon of left double quotes failure right double quotes dictate the use of probability theory and reliability analysis in the design of geotechnical systems. The objectives of the study reported in this paper were to expose some uncertainties in the strength of soils and provide a statistical description for the variation of the two strength parameters c (cohesion) and phi (angle of internal friction); and to apply a developed probabilistic model to study the reliability of a given slope. The main features of the model are reviewed and the method following for the selection of design values of c and phi is presented. The safety of the slope is measured in terms of its probability of failure (rather than the conventional factor of safety), the numerical values of which are determined through a Monte Carlo simulation. Refs.
DESCRIPTORS: SOIL MECHANICS, RELIABILITY, SOILS, Stability

1. (MATHEMATICAL STATISTICS, Monte Carlo Methods).
IDENTIFIERS: SOIL SLOPES
CARD ALERT: 483, 931, 922

1253827 ID NO. E18204033827
MECHANISM OF EROSION IN NONCOHESIVE SOILS.
Nascimento, U.

Natl Civ Eng Lab., Lisbon, Port
Proc. Int. Conf. Soil Mech. Found Eng. 10th, v 1, Stockholm, Swed., Jun 15-19 1981. Publ by A. A. Balkema, Rotterdam, Neth., and Salem, NJ, USA, 1981 p 209-213. CODEN PCSMB2
Reference is made to the fact that the shear stress due to water flow, needed to start erosion in a sandy bed, is only 1/10 to 2/10 of the resistance to shear of the monogranular layer of the bed, deduced from Coulomb's law. The erosion mechanisms proposed by some authors are analyzed. A new mechanism is suggested by which the stresses on the particles of random fluctuations of drag and lift forces are explicitly considered. Using the concepts of the safety coefficient F equal to the ratio of shear resistance to shear stress and of the probability P of the beginning of erosion, a graph is presented for calculating F as a function of P and of the coefficients of variation of shear resistance and stress. It is thus shown that the fractions 1/10 and 2/10 are but the inverse of the coefficient of safety from 5 to 10. A test is suggested for determining the angle of repose. Refs.
DESCRIPTORS: SAND AND GRAVEL, Erosion, (FLOW OF WATER, Drag), SOIL MECHANICS.
CARD ALERT: 483, 931, 631

1253843 ID NO. E18204033643
PROBABILITY OF KINEMATIC INSTABILITY IN ROCK SLOPES - A NUMERICAL APPROACH.
Glynn, E. F.; Einstein, H. H.

Univ of Pa., Philadelphia, PA, USA
Proc. Symp. Rock Mech. 20th, Austin, Tex., USA, Jun 4-6 1979. Publ by Univ of Tex., Austin, USA, 1979 p 317-325. CODEN: PSRMA6
ISSN 0085-574x
The fact that joint orientations are random variables must be considered in slope reliability analysis consisting of probabilistic kinetic and kinematic analysis. This paper presents a numerical procedure to establish the probability of kinematic instability of a 2 joint rock wedge. 6 refs.
DESCRIPTORS: ROCK MECHANICS, Stabilization.
IDENTIFIERS: SLOPE STABILITY
CARD ALERT: 483, 502

1253636 ID NO. - E18204031636
ON THE INFERENCE OF CRACK STATISTICS FROM OBSERVATIONS ON AN OUTCROPPING.
Dinnies, J. K.
Los Alamos Sci Lab, NM, USA
Proc Symp Rock Mech 20th, Austin, Tex, USA, Jun 4-6 1979
Publ by Univ of Tex, Austin, USA, 1979 p 259-263 CODEN
PSRMAG
ISSN 0085-574X

This paper considers two problems. The direct problem is to find the distribution of line segments in a plane section when the three-dimensional distribution of cracks is homogeneous, isotropic, and exponential. The indirect problem is to infer the three-dimensional distribution of cracks from the distribution on a section which could be an outcropping. Refs.
DESCRIPTORS: (*ROCK MECHANICS, *Mathematical Models).
CARD ALERT: 483, 502, 921

1253627 ID NO. - E18204033627
STATISTICS OF STRUCTURAL RESPONSES TO SEISMIC WAVES FILTERED THROUGH ROCK AND SOIL FORMATIONS.
Spanos, P. T. D.
Univ of Tex, Austin, USA
Proc Symp Rock Mech 20th, Austin, Tex, USA, Jun 4-6 1979.
Publ by Univ of Tex, Austin, USA, 1979 p 273-278 CODEN
PSRMAG
ISSN 0085-574X

The response of a single-degree-of-freedom linear structure to seismic waves is examined. Alteration of seismic waves due to random reflections, refractions and attenuations occurring during their propagation through complex rock and soil formations are represented by a simple probabilistic model. The dependence of mean energy on the natural frequency and ratio of critical damping of the structure is examined. 11 refs.
DESCRIPTORS: *ROCK MECHANICS, (SEISMIC WAVES, Transmission).
CARD ALERT: 483, 502, 484

1253615 ID NO. - E18204033615
STATISTICAL PREDICTION FORMULA FOR COMPRESSIVE STRENGTH OF A ROCK.
Jang, A. P.; Lale, V. S.
Cent Water & Power Res Stn, Pune, India
Rock Mech v 13 n 4 Mar 1981 p 215-220 CODEN: RMFMAS
ISSN 0035-7448

Compressive strength of a rock, among other mechanical properties, is known to be related to its water absorbing capacity, which is thus appropriately termed its quality index. Mapping of foundation areas and the acceptance of stones in masonry could be based on this relationship. However, the existing literature on rock mechanics does not give any prediction formula for compressive strength of a rock in terms of its quality index. Such prediction formulas for

basalt and sandstone at two sites have been developed and are presented in this paper. The 95% confidence belts for the estimated compressive strengths have also been worked out. The locus of the lower confidence limit for the estimated compressive strength enables determination of the maximum permissible quality index.
DESCRIPTORS: (*ROCK, *Mechanical Properties), STATISTICAL METHODS, ROCK MECHANICS.
CARD ALERT: 483, 421, 922

1252768 ID NO. - E18204032768
STATISTICAL CONSIDERATIONS IN PILE TESTING.
Preiss, K.; Shipiro, J.
Ben-Gurion Univ of the Negev, Beer Sheva, Isr
Proc Int Conf Soil Mech Found Eng 10th, v 2, Stockholm, Swed, Jun 15-19 1981, Publ by A. A. Balkema, Rotterdam, Neth, and Salem, NH, USA, 1981 p 799-802 CODEN: PCSMB2
When using integrity tests for quality control of piles or diaphragm wall sections, the responsible engineer must decide how many piles or elements to test. This paper provides a statistical guide for that decision. Refs.
DESCRIPTORS: (*PILES, *Testing), STATISTICAL METHODS, SAMPLING, SOIL MECHANICS.
CARD ALERT: 405, 483, 922

1252749 ID NO. - E18204032749
PERFORMANCE OF FRICTION PILES IN BANGKOK SUBSOILS.

Balasubramaniam, A. S.; Phata-yauvat, C.; Ganeshanathan, R.; Lee, K. K.

AIT, Bangkok, Thailand
 Proc Int Conf Soil Mech Found Eng 10th, v 2, Stockholm, Swed, Jun 15-19 1981. Publ by A. A. Balkema, Rotterdam, Neth, and Salem, NH, USA, 1981 p 605-610. CODEN: PCSMB2

An extensive research program has recently been completed on the behavior of more than forty full scale driven piles in twelve projects in the Bangkok plain. The ultimate bearing capacity of the piles was evaluated using Dutch cone test data as well as total and effective stress methods. Wave equation analysis was also carried out as an improvement on the normal use of dynamic pile driving formulas. Dutch cone test data are found to be most useful in predicting the ultimate bearing capacity of driven piles varying in lengths from 6 to 30 m. The total stress method is found to estimate reasonably well the bearing capacity of long piles bearing in stiff clay and in the sand layer. The effective stress method is also found to be promising for long piles. The wave equation analysis indicated that the ultimate bearing capacity as measured from test loads is about 1.22 to 1.4 times the predicted soil resistance. Results indicate that the expressions derived by M. E. Harr can be used to obtain a relationship between the central factor of safety and the probability of failure.

DESCRIPTORS: (*PILES, *Friction), SOIL MECHANICS, FAILURE ANALYSIS.

CARD ALERT 405, 483, 931

1251669 ID NO. - E18204031669
JOINTED ROCK MASS CHARACTERISTICS AND THEIR INFLUENCE ON SLENDER PILLARS.

Miller, D. R.; Barrett, J. R.

CSIRO, Aust
 Proc Symp Rock Mech 20th, Austin, Tex, USA, Jun 4-6 1979. Publ by Univ of Tex, Austin, USA, 1979 p 199-208. CODEN: PSRMAG

ISSN 0095-574X
 Techniques are examined for the collection of data on orientation, spacing, persistence and roughness. Methods are outlined for determining support of wedges in exposed pillar walls and for statistical treatment of pillar failure by joint intersection. Unstable roof blocks are determined by the limiting horizontal stress across the roof or density of artificial support. 40 refs.

DESCRIPTORS: (*MINES AND MINING, *Room and Pillar), ROCK MECHANICS, (TUNGSTEN MINES AND MINING, Room and Pillar).

CARD ALERT 502, 504, 483

1250953 ID NO. - E18204030953
MEASUREMENT, TRIAL USE AND SELECTION OF INITIAL DESIGN PARAMETERS FOR DIKES ON VERY SOFT CLAY IN THE DEAD SEA, JORDAN.

Knight, D. J.; Brice, G. J.
 Sir Alexander Gibb & Partners, Reading, Engl
 Proc Eur Conf Soil Mech Found Eng 7th, v 3, Meas, Sei and Use of Des Parameters in Geotech Eng, Brighton, Engl, Sep 1979. Publ by Br Geotech Soc, London, Engl, 1979 p 93-101. CODEN: ESMFAG

The paper describes the unusual site and foundation conditions, investigation methods and design, construction and behavior of trial dikes and resulting mud waves, including the successful repair of a failed dike, in the southern part of the Dead Sea in Jordan. Results are presented of foundation parameters as measured by in-situ and laboratory tests, with comparisons of those deduced from back analysis of the induced full-scale failures. The variability of the results is discussed, together with the approach to the selection of initial design parameters and factor of safety, based on statistical analysis of the geotechnical data and consideration of the consequent extent of future failures. The use of those parameters in the preliminary design of the dikes is described.

DESCRIPTORS: (*LEVEES, *Foundations), (CLAY, Testing), SOIL MECHANICS, (SOILS, Failure), (FOUNDATIONS, Design).

IDENTIFIERS: SOFT CLAY

CARD ALERT 442, 483, 405

1249677 ID NO. - E18204029677
SOIL/STRUCTURE INTERACTION AND SOILS HETEROGENEITY.

Vatistas, D. Th.; Hatzigogos, Th. N.; Tsotsos, S. S.
 Aristotelian Univ of Thessaloniki, Greece
 Proc Int Conf Soil Mech Found Eng 10th, v 1, Stockholm, Swed, Jun 15-19 1981. Publ by A. A. Balkema, Rotterdam, Neth, and Salem, NH, USA, 1981 p 255-258. CODEN: PCSMB2

In this paper the influence of spatial variability of deformation characteristics on contact pressure distribution and settlement predictions in a soil-structure interaction problem is studied. The computation of contact pressures and settlements is based on a modified version of dynamic relaxation method presented in the second part of the paper. In the third part a probabilistic formulation is presented. In the last part the proposed process is applied to the study of a rigid isolated foundation.

DESCRIPTORS: (*FOUNDATIONS, *Soil Structure Interaction), SOIL MECHANICS, PROBABILITY.

CARD ALERT 405, 483, 931

cone resistance in Pliocene clays. Glacioteconical processes caused clay to have strong anisotropic properties. A statistical evaluation of the properties of clay is presented. and comments are made on the causes of differences between the measured cone resistance and that calculated from the bearing capacity equation. Refs.
 DESCRIPTORS: (-CLAY, *Testing). (SOILS. Mechanical Properties). (INSTRUMENTS, Probes). SOIL MECHANICS. IDENTIFIERS: PENETROMETERS, STATIC SOUNDING CARD ALERT: 483, 421, 422

1244898 ID NO. - E18203024898
 CONFIDENCE IN THE FAILURE ENVELOPE.

Bland, J. A.
 Liverpool Polytech, Eng
 Proc Inst Civ Eng (London) v 71 pt 2 Jun 1981 p 537-541
 CODEN: PCIEAT
 ISSN 0020-3262

The shear strength parameters of soil appropriate to the range of interest are determined analytically and a simple linear relationship between normal stress and shear strength is proposed which defines a lower bound for the shear strength at a particular level of statistical confidence. 3 refs.
 DESCRIPTORS: (-SOILS, *Failure). MATHEMATICAL MODELS. SOIL MECHANICS. (STRESSES, Analysis). IDENTIFIERS: SHEAR STRENGTH CARD ALERT: 483, 921, 931, 421

1235782 ID NO. - E18202015782
 MULTIPLICITY OF NUMERICAL SOLUTIONS FOR SLOPE STABILITY PROBLEMS.

Chugh, Ashok K.
 US Bur of Reclam, Denver, Colo, USA
 Int J Numer Anal Methods Geomech v 5 n 3 Jul-Sep 1981 p 313-322 CODEN: IJNGDZ
 Existence of more than one numerical solution to the slope stability equations derived on the basis of force and moment equilibrium requirements of statistics is indicated. These solutions satisfy the boundary conditions at both ends of a potential slide mass. In the particular case considered, the details of the calculated response for the slices for each solution set assist the designer in selecting the more reasonable solution to the problem.
 DESCRIPTORS: (-SOIL MECHANICS, *Stability). (LANDSLIDES, Analysis). IDENTIFIERS: SLOPE STABILITY CARD ALERT: 483, 931

1249659 ID NO. - E18204029659
 INTEGRITY AND AS-BUILT CAPACITY OF BORED PILE GROUP.

Kisselpeffing, J. F.; Weinhold, H. F.
 O'Apollonia Consult Eng Inc, Pittsburgh, Pa, USA
 Proc Int Conf Soil Mech Found Eng 10th, v 2, Stockholm, Swed, Jun 15-19 1981. Publ by A. A. Balkema, Rotterdam, Neth, and Salem, NH, USA, 1981 p 747-749 CODEN: PCSMB2
 This paper summarizes field testing and analytical methods used to evaluate the static as-built capacity of a large group of bored piles bearing on hard rock and underlying a practically rigid superstructure. The ultimate, as built capacity-to-load ratio was determined as a function of a variable probability level, which is described in the paper. Refs.
 DESCRIPTORS: (-FOUNDATIONS, *Piles). SOIL MECHANICS. PROBABILITY. PILE GROUPS, BORED PILES CARD ALERT: 405, 483, 931

1249644 ID NO. - E18204029644
 STATISTICAL DIMENSIONING OF SLURRY TRENCH WALLS.

Bolya, J.; Regale, Z.; Sandor, I.
 Tech Univ, Budapest, Hung
 Proc Int Conf Soil Mech Found Eng 10th, v 2, Stockholm, Swed, Jun 15-19 1981. Publ by A. A. Balkema, Rotterdam, Neth, and Salem, NH, USA, 1981 p 57-60 CODEN: PCSMB2
 The determination of the load bearing capacity of slurry trench walls loaded by a vertical force and of the resulting settlement presents a number of design difficulties, because of the theories relating to this deliver significantly different results, which leads generally to the overdimensioning of the foundation. This paper reports on an empirical determination of bearing capacity-settlement based on mathematical-statistical processing of data from 300 load tests. Formulas were derived from the study for dimensioning slurry trench wall foundations under different geotechnical conditions.
 DESCRIPTORS: (-FOUNDATIONS, *Design). STATISTICAL METHODS. (RETAINING WALLS, Design). SOIL MECHANICS. IDENTIFIERS: SLURRY TRENCH WALLS CARD ALERT: 405, 483

1247312 ID NO. - E18204027312
 BEARING CAPACITY EQUATIONS OF STATIC SOUNDING OF PLIOCENE CLAY.

Mlynski, Z. B.; Sanglerat, G.
 Inst of Water Eng, Poznan, Pol
 Proc Int Conf Soil Mech Found Eng 10th, v 2, Stockholm, Swed, Jun 15-19 1981. Publ by A. A. Balkema, Rotterdam, Neth, and Salem, NH, USA, 1981 p 523-526 CODEN: PCSMB2
 General bearing capacity equations for a plane horizontal strip foundation were adopted by numerous authors to interpret results of static sounding. This paper contains evaluations of the usefulness of this equation in determining changes of

1235781 ID NO. - E18202015781
PROBABILISTIC SOIL EXPLORATION: CASE HISTORY
 Wu, Tien H.; Wong, Kinfun
 Ohio State Univ., Columbus, USA
 ASCE J. Geotech. Eng. Div. V 107 n 12 Dec 1981 p 1693-1711
 CODEN: AJGEB6
 ISSN 0893-6405

Probability concepts are applied to the interpretation of soil exploration data at a site where failure in a weak layer is considered probable. The subsoil is modeled as a two class material with soft clay layer as included within a stiff clay. A hypothetical case history is constructed to illustrate the interpretation of data obtained at different stages of the soil exploration program. The analysis of the soil exploration program considers detection and recognition of the soft material and inference that the soft material exists at unexplored locations, given that it has been detected at explored locations. The judgment of practicing engineers regarding the site conditions are presented as subjective probabilities.
 DESCRIPTORS: (*SOIL MECHANICS, *Mathematical Models). CLAR, PROBABILITY.
 IDENTIFIERS: SOIL STRATIFICATION
 CARD ALERT: 483, 931, 921, 922

1227348 ID NO. - E18201007348
STATIC PENETRATION TEST RESULTS WITH SOILS HAVING SLIGHT OR MEDIUM COHESION.
 Kozdi, A.; Mlynarek, Zb.
 Hung Acad. of Sci., Budapest
 Acta Tech. (Budapest) V 90 n 3-4 1980 p 187-199 CODEN: ATSHAB
 ISSN 0001-7035

The paper analyzes the influence of the phase composition (volume percentages of solid, air and water) on the cone resistance during static penetration test. The static sounding test was carried out using the laboratory device. The function which furnishes the relationship between cone resistance and phase composition was determined numerically. The analysis of the cohesion and angle on internal friction effect has been done using statistical methods. 22 refs.
 DESCRIPTORS: (*SOILS, *Testing), MATHEMATICAL MODELS, STATISTICAL METHODS, SOIL MECHANICS, FRICTION.
 CARD ALERT: 483, 421, 921, 922, 931

1227311 ID NO. - E18201007311
PROBABILISTIC EVALUATION OF NATURAL SLOPE FAILURE.
 Chowdhury, Robin N.
 Univ. of Wollongong, NSW, Aust.
 Eng. for Prot. from Nat. Disasters, Proc. of the Int. Conf., Bangkok, Thailand, Jan 7-9 1980 Publ. by John Wiley & Sons, Ltd., Chichester, Engl. and New York, NY, 1980 p 605-614
 The role of probabilistic approaches in evaluation of stability is highlighted after a brief summary of various

sources of uncertainty in problems concerned with natural slopes. A method for determining the probability of failure of long, natural slopes is outlined and it is shown that the most probable length or extent of failure can be evaluated on this basis. Attention is restricted to uncertainty in shear strength of slope materials but the method can be extended to include uncertainties in other parameters.
 DESCRIPTORS: (*SOIL MECHANICS, *Stability), (LANDSLIDES, Analysis), PROBABILITY.
 IDENTIFIERS: SLOPE STABILITY
 CARD ALERT: 483, 931, 922

1226437 ID NO. - E18201006437
ESTIMATING THE MEAN LENGTH OF DISCONTINUITY TRACES.
 Paul, P. J.
 CSIRO, Victoria, Aust.
 Int. J. Rock Mech. Min. Sci. Geomech. Abstr. V 18 n 3 Jun 1981 p 221-228 CODEN: IRMCBG

A technique is proposed for estimating the mean trace length of discontinuities observed in mine drive walls. The method is distribution-free, i. e. independent of the assumed functional form of the statistical distribution of trace lengths, and no knowledge of the actual lengths of the observed traces is required. Under the very general assumption that trace midpoints are randomly and homogeneously distributed, all that needs to be known about each trace observed is whether it is censored or not. The method is restricted to a set of parallel traces of arbitrary direction. It is shown that, if the joint survey imposes a cut off at some length below which traces are ignored, the method provides an exact solution if the trace length distribution can be assumed to be exponential.
 DESCRIPTORS: *ROCK MECHANICS, GEOLOGY, (ROCK, Testing).
 IDENTIFIERS: DISCONTINUITIES, ROCK JOINT TRACES
 CARD ALERT: 483, 502, 481

1226436 ID NO. - E18201006436
ESTIMATION OF DISCONTINUITY SPACING AND TRACE LENGTH USING
SCANLINE SURVEYS

Priest, S. D.; Hudson, J. A.
Int J Rock Mech Min Sci Geomech Abstr v 18 n 3 Jun 1981 p
183-197 CODEN: IJRMGB

The characteristics of discontinuities can be estimated using scanline surveys, but the precision of the estimates must be obtained and the bias caused by linear sampling must be eliminated before they can validly be used. Initially, an expression is presented which gives the degree of confidence that can be assigned to the measured mean discontinuity spacing. A reduced form of this expression is obtained for cases where the discontinuity spacings follow the negative exponential distribution. The distribution of trace lengths produced by the intersection of planar discontinuities with a planar rock face is used to determine the distribution of trace lengths, the distribution of semitrace lengths and the distribution of censored semi-trace lengths intersected by a randomly located scanline. Comparison of the actual and sampled distributions demonstrates the bias introduced by scanline sampling of trace lengths. 13 refs.

DESCRIPTORS: *ROCK MECHANICS, (TRENCH, TESTING), (SAMPLING, ANALYSIS), PROBABILITY, GEOLOGY.
IDENTIFIERS: ROCK MASSES, SCANLINE SURVEYS, DISCONTINUITIES
CARD ALERT: 483, 502, 922

1203965 ID NO. - E18112103965
STATISTICAL ANALYSIS OF SAND LIQUEFACTION

Fardis, Michael N.; Veneziano, Daniele
MIT, Cambridge, Mass
ASCE J Geotech Eng Div v 107 n 10 Oct 1981 p 1361-1377
CODEN: AJGEB6

ISSN 0093-6405
A consistent set of stochastic models is developed for the liquefaction resistance of a homogeneous mass of sand, such as a laboratory sample or small element of in situ material. A probabilistic model for liquefaction in the laboratory for undrained simple shear tests is developed first. This model gives the probability distribution of the number of cycles to liquefaction as a function of uniform shear stress amplitude, mean initial effective stress, and relative density. Corrections are quantified and incorporated into the model. Parameters are estimated from a large number of simple shear test results obtained by eight different groups of researchers using several sands and testing techniques. The laboratory liquefaction model is converted into one applicable in the field. Finally, the model is generalized to load cycles with nonuniform shear stress amplitude. 37 refs.

DESCRIPTORS: (*SOIL MECHANICS, *Mathematical Models), SAND AND GRAVEL, STATISTICAL METHODS, PROBABILITY,
IDENTIFIERS: SAND LIQUEFACTION, SHEAR TESTS
CARD ALERT: 483, 931, 921, 922

1203955 ID NO. - E18112103955
RELIABILITY APPROACH TO THE DESIGN OF GEOTECHNICAL SYSTEMS.

Athanasios-Grivas, Dimitri
Rensselaer Polytech Inst, Troy, NY
Dev in Theor and Appl Mech, v 10, Proc of the Southeast Conf on Theor and Appl Mech, 10th, Knoxville, Tenn, Apr 17-18 1980 Sponsored by Univ of Tenn, Knoxville, 1980 p 163-188

The capacity (C) and demand (D) of a structure are introduced as random variables and the expression of its probability of failure is provided for the case where both C and D follow a simplified distribution. When C and D are complicated functions of one or more random variables, then the reliability of a structure is found through a Monte Carlo simulation of failure. In a case study, a combinatory reliability analysis is used to assess the safety of a geotechnical system composed of a retaining wall, a soil slope and a footing. On the basis of the analysis and the results of this study, it is concluded that the probability of failure is a viable alternative to the conventional factor of the safety, and a system reliability approach can be used for the analysis of complex geotechnical systems. 17 refs.

DESCRIPTORS: *SOIL MECHANICS, (PROBABILITY, FAILURE), STRUCTURAL ANALYSIS, RELIABILITY.
IDENTIFIERS: GEOTECHNICAL SYSTEMS
CARD ALERT: 483, 931, 922

1198341 ID NO. - E1812098341
RANDOM VIBRATION ANALYSIS FOR THE SEISMIC RESPONSE OF EARTH DAMS.

Gazetas, G.; Debechaudhury, A.; Gasparini, D. A.
Case West Reserve Univ, Cleveland, Ohio
Geotechnique v 31 n 2 Jun 1981 p 261-277 CODEN: GTNOAB

ISSN 0016-8505
A new random vibration formulation is introduced and employed to study characteristics of the dynamic behavior of earth dams modeled as inhomogeneous shear beams and excited by strong motions consisting of vertical shear waves. Results are presented in the form of variation with time, and distribution with depth from the crest, of statistics of displacements, accelerations, shear strains and seismic coefficients on potential sliding masses. Key factors that influence the dynamic behavior are identified and their effect is demonstrated through a number of parametric plots. 33 refs.

DESCRIPTORS: (*DAMS, EMBANKMENT, *Earthquake Resistance), (SOIL MECHANICS, Mathematical Models), VIBRATIONS.
IDENTIFIERS: RANDOM VIBRATION
CARD ALERT: 441, 484, 483, 931, 921

1185040 ID NO. - E1811085040
RELATION BETWEEN CBR AND 'STATIC' MODULUS OF DEFORMATION OF
STABILIZED LATERTIC SOILS.

Ola, Samuel A.
Univ of Benin, Niger
Soil Mech Foundng Eng Proc Reg Conf Afr 7th, V 1, Accra,
Ghana, Jun 1980 Publ by A. A. Balkema, Rotterdam, Neth.
1980 p 223-232 CODEN SMAFBS
California Bearing Rates (CBR) and load tests have been
carried out on different types of lateritic soils from A-1 to
A-7. Through simple regression analysis, functional
relationships were obtained between soaked CBR, unsoaked CBR
and Sierst double quoties. 'Static' modulus of deformation for
the lateritic soils of the Zaria area in the Savannah zone of
Northern Nigeria. These regression equations permit
estimation of 'static' modulus of deformation. It is also
shown that the 'static' modulus will tend to the dynamic
modulus at a critical CBR. The approach used should be
applicable in other areas where CBR is utilized for road
design. The use of lateritic soil is only incidental. 11
refs.

DESCRIPTORS: (-SOILS, *Mechanical Properties), (ROADS AND
STREETS Stabilization), MATERIALS TESTING, SOIL MECHANICS, (-
STATISTICAL METHODS, Regression Analysis).
IDENTIFIERS: LATERTIC SOILS
CARD ALERT 483, 421, 931

1186206 ID NO. - E1811086206
R-FACTORS FOR SOIL LOSS IMPACT PREDICTION

Rogers, Robert E.; Bandy, John T.
US Army Constr Eng Div v 107 n 4 Aug 1981 p 851-857
ASCE J Environ Eng Div
CODEN JEEGAV
ISSN 0090-7914

A procedure has been developed to determine design R-values
for use with the Universal Soil Loss Equation in soil-loss
prediction during environmental impact analysis. The
procedure brings together a new method of computing R-values,
the concept of simple risk and the use of readily available
precipitation data. A test of the procedure using
precipitation data from Texas and Georgia showed that R values
calculated with the new method follow a log-normal probability
distribution. A relationship was found between R-values
computed using the new method and R-values published in
Agriculture Handbook NO. 537. 8 refs.
DESCRIPTORS: (-SOIL MECHANICS, *Mathematical Models),
ENVIRONMENTAL IMPACT, (SOILS, Erosion).
CARD ALERT 483, 931, 921, 901

1185639 ID NO. - E1811085639
ON THE OPTIMUM DESIGN OF ROCK MECHANICS PARAMETRIC STUDIES
WITH NUMERICAL MODELS.

Klass, Melvin I.
RE/SPEC Inc., Rapid City, SD

Proc Symp Rock Mech 21st, Rock Mech: A State of the Art,
Univ of Mo, Rolla, May 28-30 1980. Publ by Univ of Mo, Rolla,
1980 p 566-569 CODEN PSRMA6
ISSN 0085-574X

A specific technique from the statistical theory of design
of experiments is applied to a numerical parametric study in
rock mechanics. The parametric study involves excavation of
an underground cavern with seven parameters. Each parameter
is assumed to take on two values: a mean value and an extreme
value. The method gives experimental designs called
multifactorial designs. The minimum design for this example
called for eight numerical experiments, which give sufficient
information to compute the effects of each parameter on the
experimental outcome. The outcome of each numerical
experiment is a factor of safety computed from a pressure
sensitive failure criterion. Two cases were considered:
intact rock and jointed rock.

DESCRIPTORS: (-ROCK MECHANICS, *Mathematical Models),
TUNNELS AND TUNNELING, PARAMETRIC STUDIES
IDENTIFIERS: PARAMETRIC STUDIES
CARD ALERT: 483, 502

1185632 ID NO. - E1811085632
ANALYSIS OF THE SPATIAL VARIATION IN ROCK MASS PROPERTIES
THROUGH GEOSTATISTICS.

Univ of Wis, Madison
Proc Symp Rock Mech 21st, Rock Mech: A State of the Art,
Univ of Mo, Rolla, May 28-30 1980. Publ by Univ of Mo, Rolla,
1980 p 570-580 CODEN PSRMA6
ISSN 0085-574X

In this paper, geostatistics, a technique developed for
estimating block ore grade and tonnage, is adapted to predict
the scalar, vectorial and tensorial rock properties important
to rock engineering. A geostatistical analysis of jointing in
a quarry at Lannon, WI, confirms the potential of a variable
and inhomogeneous rock mass. Geostatistics indicates the
degree of inhomogeneity in the frequencies and orientations of
two distinct joint sets, and estimates the distance to which
these properties can be extrapolated. Additionally, the
results suggest that each joint set can be represented by a
regional semivariance function plus a more local oscillatory
component corresponding to the average spacing of the most
persistent joints. 30 refs.

DESCRIPTORS: *ROCK MECHANICS, STATISTICAL METHODS, (GEOLOGY,
Engineering), MATHEMATICAL MODELS,
IDENTIFIERS: GEOSTATISTICS, ROCK MASS PROPERTIES, ROCK
JOINTS
CARD ALERT 483, 502, 922

1185619 ID NO. - E1811085619
UNIAXIAL STRENGTH OF ROCK MATERIAL.
 Wik, Gunnar
 Atlas Copco MCI Cent Lab, Stockholm, Sved
 Geotech Test J v 3 n 3 Sep 1980 p 115-119 CODEN: GTJDDJ
 ISSN 0149-6115
 Uniaxial tensile and compressive strength were determined for a granite, a marble, and a sandstone. There was no statistically detectable difference between the strength values of large and small samples, although the volume ratio of the samples was 20 or more. Further, strain gage measurements taken during the compression tests on the granite revealed strength values that were remarkably independent of the unavoidable eccentricities of the sample loads. 13 refs.
 DESCRIPTORS: (*ROCK, *Mechanical Properties), MATERIALS TESTING, ROCK MECHANICS.
 CARD ALERT: 483, 421

Laboratory-determined engineering properties of oil shale are presented. Twenty-nine distinct engineering properties were studied, including common physical and mechanical properties obtained in uniaxial, triaxial, Brazilian tensile, and modulus of rupture tests, and Mohr-Coulomb strength parameters obtained for individual specimens using multiple-state-triaxial testing techniques. Presented here are general statistical and distributional characteristics of some engineering properties, correlations between various properties and several easily obtainable or readily available properties, and several significant bivariate and multiple regression equations for predicting various properties. 11 refs.
 DESCRIPTORS: *OIL SHALE, (ROCK MECHANICS, Mathematical Models), STATISTICAL METHODS.
 CARD ALERT: 505, 512, 483, 922

1182076 ID NO. - E1811082076
STABILITY AND SETTLEMENT OF EMBANKMENTS ON SOFT BANGKOK CLAY.

Balasubramaniam, A. S.; Sivandran, C.; Ho, Y. M.
 Asian Inst of Technol, Bangkok, Thailand
 Numer Methods in Geomech Aachen 1979, Proc of the Int Cont, 3rd, v 4: Addit Contrib Aachen, Ger, Apr 2-6 1979 Publ by A. A. Balkema, Rotterdam, Neth, 1980 p 1373-1411
 The paper summarizes an extensive study carried out on Soft Bangkok Clay related to the strength and compressibility characteristics as well as the stability and settlement characteristics of full scale test embankments. A comprehensive series of triaxial compression tests were carried out, and the results were compared with the predictions from a number of stress-strain theories. A statistical analysis of the strength and compressibility characteristics was also carried out. The uncertainties found in compressibility parameters validate the preference of the probability approach to other deterministic methods of evaluating settlement predictions. This approach introduces a new dimension of reliability into settlements. Refs.
 DESCRIPTORS: (*EMBANKMENTS, *Foundations), CLAY, (SOIL MECHANICS, Stability), (FOUNDATIONS, Settlement), PROBABILITY.
 CARD ALERT: 483, 405

1185613 ID NO. - E1811085613
COMPUTATIONAL APPROACH TO ROCK FRAGMENTATION.
 Dienes, J. K.; Morgollin, L. G.
 Los Alamos Sci Lab, NM
 Proc Symp Rock Mech 21st, Rock Mech, A State of the Art, Univ of Mo, Rolla, May 28-30 1980 Publ by Univ of Mo, Rolla, 1980 p 390-399 CODEN: PSRMAG
 ISSN 0085-574X
 A method for numerical modelling of rock fragmentation has been developed using a statistical approach to estimate the effect of flaws on rock masses. The method is based on two theoretical results. The first involves an explicit formula for the strain due to crack opening and crack shear resulting from stress on an ensemble of penny-shaped cracks. The second concerns the calculation of crack opening and crack stability for a penny-shaped crack under an arbitrary three-dimensional state of stress. The general theory accounts for the effects of open cracks and closed cracks separately, with the effect of interfacial friction on closed cracks playing an important role. A series of calculations showing the effect of strain rate on stress at a fixed strain is described. Refs.
 DESCRIPTORS: (*ROCK, *Fracture), ROCK MECHANICS, (STRESSES, Strain), (MATERIALS, Crack Propagation).
 IDENTIFIERS: ROCK FRAGMENTATION
 CARD ALERT: 483, 421, 502

1184510 ID NO. - E1811084510
STATISTICAL ANALYSIS AND MODELING OF THE PHYSICAL, MECHANICAL, AND STRENGTH PROPERTIES OF OIL SHALE.
 Bondurant, E. J.; Chang, Nien Yin
 Univ of Colo, Boulder
 Proc Symp Rock Mech 21st, Rock Mech, A State of the Art, Univ of Mo, Rolla, May 28-30 1980 Publ by Univ of Mo, Rolla, 1980 p 604-614 CODEN: PSRMAG
 ISSN 0085-574X
 The results of a comprehensive analysis of some

1161011 ID NO - E1810761011
ANALYSIS OF LIQUEFACTION POTENTIAL BASED ON PROBABILISTIC
GROUND MOTIONS.

de Herrera, Milton A.; Zsuty, Theodore C.; Abolm, Carlos A.
Stanford Univ, Calif
Soils under Cyclic and Transient Loading. Proc of the Int
Symp. v 2. Swansea, UK, Jan 7-11 1980 Publ by A. A. Balkema,
Rotterdam, Neth, 1980 p 517-521

This paper addresses itself to an aspect of liquefaction
analysis which is of critical importance. The number of cycles
at some stress level required to cause initial liquefaction
It uses and extends the methodology developed by T. C. Zsuty
and M. A. de Herrera, together with the Palmgren-Miner damage
hypothesis to study this facet of liquefaction
DESCRIPTORS: SOIL MECHANICS, (SEISMIC WAVES, Spectrum
Analysis), STRESSES, PROBABILITY.
IDENTIFIERS: GROUND MOTION, LIQUEFACTION, COHESIONLESS SOILS
CARD ALERT 483, 931, 484

1160417 ID NO - E1810760417
STEREOLICAL INTERPRETATION OF JOINT TRACE DATA: INFLUENCE
OF JOINT SHAPE AND IMPLICATIONS FOR GEOLOGICAL SURVEYS.

Warburton, P. M
CSIRO, Mount Waverley, Victoria, Aust
Int J Rock Mech Min Sci Geomech Abstr v 17 n 6 Dec 1980 p
305-316 CODEN IRMG8G

The paper presents a new statistical model for the
geometrical and spatial distributions of joints, incorporating
a joint shape based on the parallelogram. The model is linked
with geological surveys by analytical predictions of trace
patterns, covering area and line sampling, distributions of
trace lengths and spacings, and allowance for truncation.
Care is taken to express the equations in suitable forms for
numerical evaluation. The predicted trace patterns are
examined over the full range of exposure orientations and are
shown to be generally consistent with reported observations.
Implications for geological surveys are discussed in some
detail, together with ways of obtaining the parameters of the
model from field data. 10 refs.

DESCRIPTORS: (ROCK MECHANICS, Mathematical Models),
GEOLOGY, Engineering, GEOLOGICAL SURVEYS.
IDENTIFIERS: ROCK JOINTS
CARD ALERT 483, 502, 481, 922

1160415 ID NO - E1810760415
FRAGMENTATION OF SOLIDS UNDER IMPULSIVE STRESS LOADING

Grady, D. E
Sandia Lab, Albuquerque, NM
J Geophys Res v 86 n B2 Feb 10 1981 p 1047-1054 CODEN
JGREA7

ISSN 0022-1406
An analysis of fragmentation due to dynamic stress loading
is presented which provides analytic functions for the
distributions in fragment sizes. The analysis is restricted

to one-dimensional bodies under uniform tensile loading.
Concepts of survival statistics are used to account for
spatially random fracture nucleation. Fragment size
distribution curves for both brittle and ductile fracture are
derived, and the curve for the latter is compared with
experimental data. Fragment distribution curves are shown to
depend on both material deformation properties and loading
conditions. 30 refs.

DESCRIPTORS: ROCK MECHANICS.
CARD ALERT: 483, 502

1152701 ID NO - E1810652701
GENERAL CRITERIA FOR THE VALIDITY OF THE BUCKINGHAM-DARCY
FLOW LAW.

Sposito, Garrison
Univ of Calif, Riverside
Soil Sci Soc Am J v 44 n 6 Nov-Dec 1980 p 1159-1168
CODEN: SSSJ04
ISSN 0361-5995

A detailed, first-principles study is undertaken on the
exact equation of linear momentum balance for water in an
unsaturated soil. It is shown that an approximate momentum
balance equation, presented originally by P. A. C. Raats and
A. Klute, can be used to demonstrate unequivocally that the
flow of water through a rigid, homogeneous, isotropic,
unsaturated soil will obey the Buckingham-Darcy law within
 10^{-1} minus 10^{-2} to 10^{-1} minus 10^{-2} sec after a gradient
in the total potential of soil water has been applied. An
exact equation of motion for the Fourier component of the
water mass flux density vector is derived using methods in
nonequilibrium statistical mechanics. This exact equation is
employed to deduce the general physical criteria required for
the Raats-Klute equation to be an accurate expression. 30
refs.

DESCRIPTORS: (SOILS, Moisture), (FLOW OF WATER,
Underground), MATHEMATICAL MODELS, SOIL MECHANICS.
IDENTIFIERS: UNSATURATED SOILS
CARD ALERT: 483, 631, 921, 931

1152678 ID NO E1810652678
MODEL FOR SOIL BEHAVIOR UNDER MONOTONIC AND CYCLIC LOADING CONDITIONS.

Dafalias, Y. F.
 Univ of Calif, Davis
 Trans Int Conf Struct Mech React Technol 5th, v K(a) Seism Response Anal of Nucl Power Plant Syst, Berlin, Ger, Aug 13-17 1979. Publ by North-Holland Publ Co, Amsterdam, Neth for Comm of the Eur Communities, Brussels, Belg, 1979 Pap K 1, 8, 9 p.
 A mathematical model capable of describing the soil behavior under any loading conditions, monotonic or cyclic, is presented within the framework of critical state soil mechanics. The soil is considered as an elasto-plastic material without a purely elastic range. Therefore, the concept of the yield surface is completely abandoned and instead the concept of the bounding surface in stress space is introduced, within or on which the stress state always lies. 11 refs.

DESCRIPTORS (-SOIL MECHANICS, *Research), MATHEMATICAL STATISTICS.
 CARD ALERT 483, 931, 922

1152670 ID NO E1810652670
MEASUREMENT AND COMPARISON OF SOIL STRUCTURES

Hewitt, J. S.; Dexter, A. R.
 Waite Agric Res Inst, Glen Osmond, South Aust, Aust
 Appl Math Modell v 5 n 1 Feb 1981 p 2-12. CODEN AMMODI
 ISSN 0367-904X

A model is established to describe the structures of tilled soils using Markov chain theory. The effectiveness of the model in describing soil structures, and its accuracy when the model parameters are determined from limited field data, is investigated by a consideration of variances of the transition probabilities and Markov chain state occurrences in finite length chains. Criteria for correlation of soil structures at small horizontal and vertical displacements are derived, in order to establish distances at which soil structures become effectively independent. In this, a mathematical analysis is made of limiting covariances, generally applicable to the type of Markov chain used in describing these structures, in order to reduce drastically computing time in processing field data. Similarity coefficients are defined from the theory to measure similarity in different soil structures, and are compared in practice 11 refs.

DESCRIPTORS (-SOIL MECHANICS, *Analysis), (SOILS, Measurements), (AGRICULTURAL ENGINEERING, Research), (PROBABILITY, Random Processes).
 IDENTIFIERS MARKOV CHAINS, TILLED SOILS
 CARD ALERT 483, 931, 922, 947, R21, 901

1152669 ID NO E1810652669
STEADY STATE OF DEFORMATION

Phillips, Steve J.
 Geotech Eng Inc, Winchester, Mass

ASCE J Geotech Eng Div v 107 n 5 May 1981 p 553-562
 CODEN AUGEB6
 ISSN 0093-6405

The steady state of deformation for any mass of particles is that state in which the mass is continuously deforming at constant volume, constant normal effective stress, constant shear stress, and constant velocity. The steady state of deformation is achieved only after all particle orientation has reached a statistically steady-state condition and after all particle breakage, if any, is complete, so that the shear stress needed to continue deformation and the velocity of deformation remain constant. The similarities and differences between steady-state deformation and the current use of the term critical state are described. A special undrained triaxial test on a sand is presented to demonstrate clearly that a special flow structure exists during steady-state deformation, which is quite different from the initial structure, and which is credited to a nonrandom, i. e., statistically oriented, arrangement of the sand grains. 15 refs.

DESCRIPTORS *SOIL MECHANICS, SAND AND GRAVEL, (SOILS, Testing).
 IDENTIFIERS DEFORMATION, RESIDUAL SHEAR STRENGTH
 CARD ALERT 483, 931

1149041 ID NO - E1810548003
STATISTICAL STUDY OF UNIFORM CYCLES IN EARTHQUAKES

Author: Ashraf, A. Tang, Wilson H.
 Aff: J. Geotech Eng Div v 107 n 5 May 1981 p 577-589
 CODEN AJGEB6
 ISSN 0093-6405

The applicability of equivalent uniform stress cycles in soil dynamics to the study of soil behavior during and after an earthquake is explored. The actual irregular time histories produced by an earthquake can be represented by uniform amplitude cyclic stresses, although there may be a considerable amount of uncertainty associated with them. The stress level of 75 percent of the maximum is suggested for such conversion, since in this case the uncertainty in the normalized soil-strength curve has a minimum effect on the value of the $N/S/e/q$ versus M relationship. A statistical relationship between $N/S/e/q$ and the earthquake magnitude is proposed here based on results available in the literature. The $N/S/e/q$ could be estimated adequately by considering the component of excitation containing the peak acceleration. The $N/S/e/q$ versus M relationship proposed is somewhat different from the relationship suggested by Seed and Idriss. This discrepancy in $N/S/e/q$ values may not yield significant differences in estimating the soil strength in a liquefaction study. 33 refs.

DESCRIPTORS: EARTHQUAKES. (SOIL MECHANICS. Mathematical Models). DYNAMICS. VIBRATIONS. STATISTICAL METHODS.
 CARD ALERT 484, 483, 931, 921, 922

1144389 ID NO - E1810544389
STOCHASTIC MODEL OF THE CREEP OF SOILS.

Author: R. Fetham, P.
 Aff: J. Geotech Eng Div v 30 n 4 Dec 1980 p 497-506
 CODEN GTNQAR
 ISSN 0016-8505

A statistical model embodying changes in the spectrum of activation energies is outlined. With usual conditions of testing, it yields a linear relation between the creep strain and the logarithm of time. The model is shown to account well for creep behavior of undrained clay, and to provide an appropriate framework for the representation and study of the creep of structurally sensitive clay and clayey silt, as well as for less sensitive soils. The determination of the most probable activation energy in the spectrum is discussed. 15 refs.

DESCRIPTORS: (SOIL MECHANICS. Mathematical Models). MATERIALS. Creep. (STRAIN, Analysis). CLAY. STATISTICAL METHODS.
 CARD ALERT 483, 931, 921, 421, 922

Univ of Ill, Urbana
 Nor Geotek Inst Publ n 131 1980 19 p CODEN NGIFRZ
 ISSN 0078-1193

The paper presents a probabilistic model formulated to predict the penetration resistance and unbalanced moment encountered during the installation of a gravity platform. The uncertainties considered include the inherent spatial variability of soil resistances, location of the installed platform, limited number of cone penetration tests over the base of the platform, and calibration error thereof. Both horizontal and sloping seabed have been treated. The validity of the proposed model appears to be substantiated from the reasonable agreement between the predicted penetration resistance and unbalanced moment and those actually observed at two sites studied.

DESCRIPTORS: (OFFSHORE STRUCTURES. Foundations). (SOIL MECHANICS. Mathematical Models). (SOILS. Mechanical Properties). PROBABILITY.
 IDENTIFIERS: CONCRETE GRAVITY STRUCTURES
 CARD ALERT 674, 483, 922

1136119 ID NO - E1810436119
PROBABILISTIC EVALUATION OF LOADS

Author: Tang, Wilson H.
 Aff: J. Geotech Eng Div v 107 n 3 May 1981 p 287-304
 CODEN AJGEB6
 ISSN 0093-6405

The loads that effect geotechnical designs are reviewed, characterizing the uncertainties in each load component. Probabilistic models for evaluating each component are examined. Whenever data are available, the level of variabilities and uncertainties associated with the effect of each component on the foundation is assessed. Satisfactory performance of a geotechnical system relies, in part, on a good understanding of the characteristics of the loads and environments to which the system is subjected. Uncertainties do exist in these factors. For dynamic loads due to earthquake excitation and wave action, both their magnitude and frequencies of occurrences over the expected duration of the system could not be known. The long-term stability of soil slope would also be dependent on stochastic fluctuation of the pore pressure due to seasonal variation and other temporal changes in the environment. 36 refs.

DESCRIPTORS: (SOIL MECHANICS. Mathematical Models). STATISTICAL METHODS. PROBABILITY. FOUNDATIONS. Soil Structure Interaction.
 IDENTIFIERS: EARTH PRESSURE
 CARD ALERT 483, 931, 921, 922, 405

1142659 ID NO - E1810542659
PROBABILISTIC EVALUATION OF PENETRATION RESISTANCES.

Tang, Wilson H.

1125938 ID NO. - E1810325R38
**POAC 79, INTERNATIONAL CONFERENCE ON PORT AND OCEAN
 ENGINEERING UNDER ARCTIC CONDITIONS, 5th, PROCEEDINGS, 1979.**

Univ of Trondheim, Norw Inst of Technol
 POAC 79, Int Conf on Port and Ocean Eng Under Arctic Cond,
 5th, Proc, Univ of Trondheim, Norw Inst of Technol, Aug 13-18
 1979 Publ by Univ of Trondheim, Norw Inst of Technol, 1979 3
 vol 2022 p
 This conference proceedings contains 86 papers. Eighty
 papers are indexed separately. Topics covered include
 interaction between ice and shore; pack ice and icebergs;
 remote surveillance and instrumentation technology;
 environmental aspects; oceanography and meteorology; wave
 mechanics and statistics; ice properties and their testing;
 soil mechanics; marine structures; oil spills; and harbor
 and marine protective structures.
 DESCRIPTORS: OCEAN ENGINEERING, OFFSHORE STRUCTURES, OIL
 WELL DRILLING, OFFSHORE, PETROLEUM PROSPECTING, OCEANOGRAPHY,
 ICE.
 CARD ALERT 472, 674, 511, 512, 471, 481

1123557 ID NO. - E1810323557
**DEPENDENCE OF THE FOURIER AMPLITUDE SPECTRA OF STRONG MOTION
 ACCELERATION ON THE DEPTH OF SEDIMENTARY DEPOSITS.**

Trifunac, Mihailo D.; Lee, Vincent W
 Rep Univ South Calif Dep Civ Eng n 78-14 Dec 1978 39 p
 CODEN RUSE00
 The report presents an improvement in empirical scaling of
 Fourier spectrum amplitudes of strong motion earthquake
 accelerations by introducing the frequency dependent effects
 of local geologic conditions, characterized by the depth of
 sediments beneath the recording station. Equations presented
 lead to smaller spread of data about the empirical models than
 previous related empirical scaling of Fourier spectrum
 amplitudes. Simplified statistical tests on the significance
 of chosen parameters and of the regression equations show
 significant increase in spectral amplitudes with the depth of
 sediments for periods longer than about 1 second. For high
 frequencies, this trend is reversed, but small. 16 refs
 DESCRIPTORS: (*GEOPHYSICS, *Seismic), (*SOIL MECHANICS,
 Mathematical Models), SEISMIC WAVES, EARTHQUAKES,
 SEDIMENTATION,
 IDENTIFIERS: EARTHQUAKE ACCELERATIONS
 CARD ALERT 481, 484, 483, 931, 921

1119559 ID NO. - E1810219559
**SOME ASPECTS OF THE BEHAVIOR OF TUNNELS THAT CROSS ACTIVE
 FAULTS**

Brown, J. A.; Blevins, T. L.
 Univ of Calif, Berkeley
 Aust - NZ Conf on Geomech, 3rd, v 2, Wellington, NZ, May
 12-16 1980 Publ by NZ Inst of Eng (Proc of Tech Groups, v 6
 Issue 1(G)), Wellington, 1980 p 2 189-2, 194

Active faults are mapped as nearly linear features, and are
 often crossed by civil engineering structures. The
 classification of a fault as active implies a probability that
 fault slippage will cause damage to structures that cross it.
 This paper describes the problems that arise when a tunnel is
 located across an active fault, and some design solutions are
 suggested. The Bay Area Rapid Transit (BART) Berkeley Hills
 tunnels that cross the active Hayward Fault in California are
 used as a case study. Among the points covered are active
 fault phenomena that can affect a tunnel, the effect of fault
 creep on tunnels, and instrumenting high risk areas to detect
 potentially damaging changes in loading and deformation.
 DESCRIPTORS: *TUNNELS AND TUNNELING, (GEOLOGY, Engineering).
 IDENTIFIERS: GEOLOGICAL FAULTS
 CARD ALERT: 401, 481, 483

1117812 ID NO. - E1810217812
**APPLICATION OF VARIOUS ROCK MASS CLASSIFICATIONS TO
 UNSUPPORTED OPENINGS AT MOUNT ISA, QUEENSLAND: A CASE STUDY.**

Baczynski, N. R. PL
 CSIRO, Aust
 Aust - NZ Conf on Geomech, 3rd, v 2, Wellington, NZ, May
 12-16 1980 Publ by NZ Inst of Eng (Proc of Tech Groups, v 6
 Issue 1(G)), Wellington, 1980 p 2 137-2, 143
 A number of published rock mass classification systems are
 applied to the assessment of unsupported openings within the
 dolomitic shales at the Mount Isa Mine in Australia. A
 statistical model for local variability in the intensity of
 fracturing within the shales serves as a basis for the
 structural data input. Results of the analysis are presented,
 and limitations of the classification systems are discussed.
 Possible improvements in the systems are suggested. Refs.
 DESCRIPTORS: *ROCK MECHANICS, (MINES AND MINING, Tunneling).
 IDENTIFIERS: ROCK MASSES, CLASSIFICATION SYSTEMS
 CARD ALERT: 483, 502, 481

STEREOLGICAL INTERPRETATION OF JOINT TRACE DATA.

1117808 ID NO. E1810212808
 WILKINSON, P. M.
 CSIRO, Melbourne, Victoria, Aust.
 Int. J. Rock Mech Min Sci Geomech Abstr. v 17 n 4 Aug 1980 p 181-190 CODEN JRMGRG
 A statistical model of joints is used to derive analytical predictions of the patterns of traces observed in geological surveys. The deviations are carried out for both area and line sampling and cover the distributions of trace lengths and spacings, including allowance for truncation. An application to rock bolting is also described. The equations are converted, where necessary, to forms that facilitate numerical evaluation. An example illustrates how the parameters of the model may be obtained from field data. 24 refs.
 DESCRIPTORS: *ROCK MECHANICS. (GEOLOGY. Engineering).
 MATHEMATICAL MODELS.
 IDENTIFIERS: ROCK JOINTS
 CARD ALERT 483, 502, 481

ZONAL CONCEPT FOR SPATIAL DISTRIBUTION OF FRACTURES IN ROCK.

1117799 ID NO. E1810217799
 Baczynski, R. P.
 Univ. of Melbourne, Aust.
 Aust. NZ Conf on Geomech. 3rd, v 2, Wellington, NZ, May 12-16 1980 publ by NZ Inst of Eng (Proc of Tech Groups. v 6 Issue 1G1), Wellington, 1980 p 2 29-2, 33
 Evaluation of the spatial distribution of fractures within the dolomitic shales at the Mount Ixra Mine in Australia suggests that fractures tend to occur in zones. Computer modeling of fracture distributions indicates that the field mapping technique of single line sampling fails to provide sufficient data to fully characterize the rock mass. A simple data collection model formulation concept is described that will enable the local variability within any rock mass to be assessed. The method permits the statistical evaluation of masses in terms of fracture intensities of each set that is likely to be associated with underground openings of any given shape and size.
 DESCRIPTORS: (*ROCK. *Fracture). (GEOLOGY. Engineering).
 STATISTICAL METHODS. MATHEMATICAL MODELS. ROCK MECHANICS.
 IDENTIFIERS: ROCK MASSES
 CARD ALERT 483, 481

ASSESSING THE PROBABILITY OF RAPID MASS MOVEMENT.

1115208 ID NO. E1810215208
 Crozier, M. J.; Fyfe, R. J.
 Victoria Univ of Wellington, NZ
 Aust. NZ Conf on Geomech. 3rd, v 2, Wellington, NZ, May 12-16 1980 publ by NZ Inst of Eng (Proc of Tech Groups. v 6 Issue 1G1), Wellington, 1980 p 2 47-2, 51
 Threshold conditions required to induce landsliding on Ottago peninsula and in Wellington City in New Zealand are identified by employing water balance calculations and antecedent

CASE FOR TERRESTRIAL PHOTOGRAMMETRY IN DEEP-MINE ROCK STRUCTURE STUDIES.

1114269 ID NO. E1810214269
 Haqan, T. O.
 West Deep Levels Ltd, S Afr
 Int J Rock Mech Min Sci Geomech Abstr. v 17 n 4 Aug 1980 p 191-198 CODEN JRMGRG
 A method of rock fracture orientation mapping by photogrammetric means is detailed. The technique is particularly useful for statistical studies of fracture patterns in the often confined and uncomfortable underground environment. The advantages of convenience, efficiency and high accuracy of dip and dip direction measurements are stressed. Sections are devoted to the background theory of terrestrial photogrammetry, a description of the unsophisticated photographic equipment used and the actual procedure, which involves certain external control measures, photo-interpretation, data entry and processing, with the aid of a stereoscope, digitizer and mini-computer, are outlined. Two sources of error are analyzed.
 DESCRIPTORS: *GEOLOGICAL SURVEYS. PHOTOGRAMMETRY. (ROCK MECHANICS. Research). MINES AND MINING.
 CARD ALERT 481, 483, 742

1114075 ID NO. - E1810214075
ULTIMATE LOAD FOUNDATION DESIGN USING STATISTICALLY BASED FACTORS.

McAnally, P. A.
 Queensl Inst of Technol, Aust
 Aust NZ Conf on Geomech, 3rd, v 2, Wellington, NZ, May
 12-16 1980 Publ by NZ Inst of Eng (Proc of Tech Groups, v 6
 Issue 1(G)), Wellington, 1980 p 2, 227-2, 232
 The results of pile load tests are presented from various
 sites in stiff fissured clays. With a statistical model of
 soil response to foundation load. The significance of some
 deviations in observed pile performance from conditions
 commonly assumed in design is tested by means of this model.
 It is shown that the model allows the evaluation of a material
 response factor for ultimate load design of foundations, and a
 design example is given.
 DESCRIPTORS: (*FOUNDATIONS, *Piles), (SOIL MECHANICS,
 Mathematical Models), (PILES, Testing).
 CARD ALERT 405, 483, 931

1108283 ID NO. - E1810108283
LIQUEFACTION STUDY SEM DASHES A DECISION ANALYSIS FRAMEWORK

Hajjar, Achintya
 Ga Inst of Technol, Atlanta
 ASCE J Geotech Eng Div v 106 n 12 Dec 1980 p 1297-1312
 CODE: ADJ686
 ISSN 0093-6405
 A decision analysis framework is developed here to study the
 liquefaction problem. When the liquefaction risk of a site is
 found to be unacceptable, several alternatives could be
 attempted. However, economic as well as technical aspects need
 to be considered in selecting the best solution. This type of
 study would be particularly helpful if the limitation or
 elimination of damage associated with liquefaction is a design
 criterion. In this paper, several design alternatives for a
 liquefaction study have been identified and a decision tree is
 used to organize essential information. A decision can be
 made with available information or with additional information
 if additional time and money are available. Collection of
 additional information may not be always desirable for all
 projects. It depends on many factors and they are identified
 here. If the additional information is desirable, the maximum
 amount of money that should be spent can also be estimated
 from this study. 37 refs.
 DESCRIPTORS: (*SOILS, *Moisture), SOIL MECHANICS, SAND AND
 GRAVEL, STATISTICAL METHODS,
 IDENTIFIERS: LIQUEFACTION
 CARD ALERT 483, 931, 922

1108243 ID NO. - E1810108243
PROBABILISTIC STABILITY ANALYSIS OF EARTH SLOPES.

Vinmarcke, E. H.
 MIT, Cambridge, Mass
 Eng Geol v 16 n 1-2 Jul 1980 p 29-50 CODEN: EGGDQD

ISSN 0013-7952
 A method of probabilistic analysis of three-dimensional
 limit equilibrium stability of long earth slopes is presented
 and its application to earth embankment design is discussed.
 The method accounts for the spatial variability of the shear
 strength. It is in principle capable of accommodating
 frictional and cohesive components of shear strength as well
 as a spectrum of drainage conditions. The probabilistic model
 predicts that slope failure events involving very long or very
 short widths of the failure zone are highly improbable. The
 paper evaluates the probability of a sliding failure at a
 specific location, as well as the risk that a failure will
 occur anywhere along a slope of given total length. Refs.
 DESCRIPTORS: (*SOIL MECHANICS, *Stability), PROBABILITY,
 EMBANKMENTS, Design), (SOILS, Shear Strength), DRAINAGE,
 IDENTIFIERS: SLOPE STABILITY, STABILITY ANALYSIS
 CARD ALERT 483, 931, 922

1108241 ID NO. - E1810108241
SEISMIC ANALYSIS OF SLOPES IN THE NORTHEAST U. S. A.
 Rensselaer Polytech Inst, Troy, NY
 Symp on Earthquake Eng, 6th, v 1, Univ of Roorkee, India,
 Oct 5-7 1978 Publ by Sarita Prakashan, Meerut, India p 157-161
 The probability distribution of the earthquake magnitude is
 obtained with the aid of a log-linear magnitude-recurrence
 relation and its dependence on the numerical values of the
 regional parameters is investigated. An upper and lower bound
 for the magnitude are considered. The statistical values and
 probability distribution of the maximum ground acceleration
 are also determined. An "left double quoted error term
 right double quoted" is introduced to improve the
 correspondence between observed and computed values. In a
 case study, the dependence is examined of the safety of a soil
 slope on the choice of the attenuation relation, the numerical
 values of regional parameters, and the distance between the
 earthquake source and the site of the slope.
 DESCRIPTORS: (*SOIL MECHANICS, *Stability), EARTHQUAKES,
 PROBABILITY, DYNAMICS,
 IDENTIFIERS: SOIL DYNAMICS, SEISMIC ANALYSIS
 CARD ALERT 483, 931, 484, 922

1104240 ID NO - E180100230
PROBABILISTIC SEISMIC STABILITY ANALYSIS SEM DASHS A CASE STUDY

Atkinson, G. V. 17 n 3 Aug 1980 p 353-6. CODEN: GGDJAH
 Can Geotechn J. V 17 n 3 Aug 1980 p 353-6. CODEN: GGDJAH
 ISSN 0008-3674

A previously developed model is used to provide a probabilistic seismic stability analysis for a natural slope located near Singelands, New York. The safety of the slope is measured in terms of its probability of failure rather than the customary factor of safety. Three types of possible earthquake sources are investigated, namely, a point, a line, and an area source. The dependence on significant seismic parameters of the probability of failure of the slope is examined and the results are presented in a number of graphs and tables. Refs.

DESCRIPTORS: (1) SOIL MECHANICS, (2) STABILITY, (3) EARTHQUAKE RESISTANCE, PROBABILITY, FAILURE ANALYSIS.
 IDENTIFIERS: SEISMIC STABILITY, SLOPE STABILITY
 CARD ALERT: 483, 931, 922

1107360 ID NO - E180100360
RELIABILITY OF RETAINING STRUCTURES DURING EARTHQUAKES.

Reinhold, G. V. 17 n 3 Aug 1980 p 353-6. CODEN: GGDJAH
 Can Geotechn J. V 17 n 3 Aug 1980 p 353-6. CODEN: GGDJAH
 ISSN 0008-3674

The paper reports on a study to provide an expression for the pressure acting on a retaining wall during an earthquake, and to determine the probability of failure of the wall through an application of the combinatorial reliability analysis. The distribution of the pressure along a wall during an earthquake is derived through a quasi-static analysis and with the aid of the left double quotes method of redistribution of pressure. Right double quotes. The safety of the wall is measured in terms of its probability of failure rather than the customary factor of safety. Four possible modes of failure are considered: overturning, base sliding, failure in bearing capacity and overall sliding. The value of the total probability of failure is then found through a combinatorial reliability analysis. The developed analysis is applied in a case study. Refs.

DESCRIPTORS: (1) RETAINING WALLS, (2) EARTHQUAKE RESISTANCE, RELIABILITY, SOIL MECHANICS, (3) PROBABILITY, FAILURE, IDENTIFIERS: SOIL DYNAMICS, SOIL SEISMIC PRESSURE
 CARD ALERT: 405, 484, 487, 971

1085591 ID NO - E1801185991
IDENTIFICATION OF A ONE-DIMENSIONAL MODEL FOR A SOIL-LAYER-BEDROCK SYSTEM DURING AN EARTHQUAKE.

Tomizawa, Minoru
 Sei Univ of Tokyo, Noda, Jpn
 Earthquake Eng Struct Dyn v 8 n 3 May-Jun 1980 p 251-265

CODEN: JEEPS
 ISSN 0013-6947
 The propriety of adopting a multi-degree-of-freedom lumped mass spring-damper system driven by white noise support excitation as a one dimensional model for a soil-layer-bedrock system during an earthquake is investigated by means of statistical system identification of the model with noisy measurement of the earthquake ground velocity. The present discussion also suggests that this model may not be applicable to all observed earthquake records, since the model itself depends on the statistical nature of the earthquake motion. For appropriate earthquake records, the system identification procedure may be accomplished; then dynamical properties of the soil-layer and the power spectral density for white noise excitation acting upon the bedrock can be estimated as shown in a numerical example using 15 refs.

DESCRIPTORS: (1) SOIL MECHANICS, (2) EARTHQUAKES, (3) MATHEMATICAL MODELS.
 IDENTIFIERS: SOIL LAYER-BEDROCK SYSTEMS
 CARD ALERT: 483, 931, 484, 922

1085569 ID NO - E1801185569
ON THE PROBABILITY DISTRIBUTION OF FAILURE LIFE OF ROCK UNDER CONSTANT TENSILE STRESS.

Nishimatsu, Yuichi; Yamaguchi, Tsutomu
 Univ of Tokyo, Jpn
 Zairyo v 29 n 317 Feb 1980 p 192-197 CODEN: ZARYAQ
 ISSN 0514-5163

The failure lives of rock were observed under constant uniaxial tensile stress, and the results were analyzed on the assumption that the failure process of rock is a stochastic process. When the logarithms of probability of survival were plotted against failure lives, a curve opening upwards was obtained on probability-time (p-t) diagram. This upwards concave curve on p-t diagram means that the failure process is neither serial nor cumulative, but consists of parallel Poisson's processes of first order. It is suggested that this upwards concave curve is caused from the stochastic dispersion of the rate constant of failure by various factors, rather than the coexistence of a few parallel failure processes with definitely different rate constants of failure. Based on the test results, the probability distribution of the rate constant of failure was graphically analyzed, and expressed as a discrete distribution of four rate constants. 10 refs. In Japanese

DESCRIPTORS: (1) ROCK, (2) FAILURE, (3) PROBABILITY, (4) MATERIALS TESTING, (5) TENSILE TESTS, (6) ROCK MECHANICS.
 IDENTIFIERS: FAILURE LIFE, STOCHASTIC PROCESSES
 CARD ALERT: 483, 421, 922

1085567 ID NO. - E1801185567
DISCONTINUITIES AND ROCK MASS GEOMETRY.
 Hudson, J. A.; Priest, S. D.
 Dep of Environ & Transp. London, Engl
 Int J Rock Mech Min Sci Geomech Abstr v 16 n 6 Dec 1979 p
 339-362 CODEN: IJRMGR
 Variation in discontinuity frequency as a function of
 scanline orientation in a plane is studied for rock masses
 containing sets of discontinuities. The spacing values
 between discontinuity intersection points that can occur along
 such scanlines are considered in order to develop a
 probability density distribution of block lengths. The ideas
 are extended to block area and volume distributions
 synthesized from the products of discontinuity spacing values
 along two and three axes respectively. Such distributions are
 also considered for rock masses where each discontinuity
 occurs with a random orientation. Histograms of discontinuity
 spacing and block area values compiled from measurements made
 on a variety of rock exposures are in general agreement with
 the theoretical distributions. 10 refs.
 DESCRIPTORS: *ROCK, PROBABILITY, (GEOLOGY, Engineering),
 ROCK MECHANICS,
 IDENTIFIERS: ROCK MASS GEOMETRY, DISCONTINUITIES, BLOCK
 LENGTHS
 CARD ALERT 483, 502, 922

Gheinin, V. I
 Res Inst of Bases & Underground Struct., Moscow, USSR
 Numer Methods in Geomech Aachen 1979, Proc of the Int Conf.
 3rd, v 2, Aachen, Ger., Apr 2-6 1979 Publ by A. A. Balkema,
 Rotterdam, Neth, 1979 p 663-669
 A solution to the stress concentration problem for a
 circular hole in an elastic plane with irregular heterogeneity
 is given. Fourier expansions for stress distribution cover
 the hole boundary and for its correlation function are
 presented. An algorithm to compute the correlation function
 using recurrent techniques for calculation of the special
 function involved is given in detail. The relationship of
 computed values based on the ratio of hole radius to the
 specific dimension of inhomogeneities is found and studied.
 The results yield a simple approximation of the computed
 function which can be used in practice. Refs.
 DESCRIPTORS: (*TUNNELS AND TUNNELING, *Stresses),
 PROBABILITY, ROCK MECHANICS,
 IDENTIFIERS: UNDERGROUND OPENINGS \$-\$. ROCK MASSES
 CARD ALERT 401, 483, 922

1071135 ID NO. - E1800971135
PATH OF FLOW AND ITS EFFECT ON CONSOLIDATION RATES.
 Athanasiou-Grivas, Dimitri; Harr, Milton F.
 Rensselaer Polytech Inst, Troy, NY
 Numer Methods in Geomech Aachen 1979, Proc of the Int Conf.
 3rd, v 1, Aachen, Ger., Apr 2-6 1979 Publ by A. A. Balkema,
 Rotterdam, Neth, 1979 p 125-131
 A probabilistic model is presented for the determination of
 the time rate of pore pressure (in excess of hydrostatic)
 dissipation through a compressible soil layer. The pore water
 flow is treated as a 1st double quote\$ random walk \$right
 double quote\$ process. The similarity between flow paths and
 configurations of polymer chains is exploited to determine the
 probability density function of the total length of flow
 lines. Differences between the laboratory and field flow
 conditions are examined and predictions are made of the
 expected rates of dissipation of pore water pressure for the
 latter Refs.
 DESCRIPTORS: (*SOIL MECHANICS, *Pore Pressure), (SOILS,
 Consolidation), MATHEMATICAL MODELS, PROBABILITY, (FLOW OF
 WATER, Porous Materials),
 IDENTIFIERS: PROBABILISTIC MODELS
 CARD ALERT 483, 931, 922, 631

1078653 ID NO. - E1801078653
**DESIGN METHOD OF DEEP EXCAVATION IN COHESIVE SOIL BASED ON
 THE RELIABILITY THEORY.**
 Matsuo, Minoru; Kawamura, Kunio
 Nagoya Univ, Jpn
 Soils Found v 20 n 1 Mar 1980 p 61-75 CODEN: SOIF8E
 ISSN 0038-0806
 A design method, based on the reliability theory is applied
 to the design of large-sized excavation works. The
 optimization of the prior design before construction is
 described. The method to decide the optimal action in the
 prior design is discussed based on the statistical properties
 of soils and the analytical error of the conventional design
 equations. The obtained optimal solutions are compared with
 the actual results of the past construction fields. In the
 second half of this paper, the dynamic design procedure in
 which the results of the prior design are modified by new
 information obtained during construction is applied to the
 excavation problem. 12 refs.
 DESCRIPTORS: (*SOIL MECHANICS, *Mathematical Models),
 EXCAVATION, OPTIMIZATION, STATISTICAL METHODS,
 IDENTIFIERS: COHESIVE SOIL, RELIABILITY THEORY
 CARD ALERT 483, 931, 921, 405, 922

1071933 ID NO. - E1800971933
**COMPUTATION AND ANALYSIS OF PROBABILISTIC CHARACTERISTICS OF
 STRESSES NEAR UNDERGROUND OPENING IN STOCHASTICALLY
 INHOMOGENEOUS ROCK MASS.**

1071121 ID NO. E1800971121
BAYESIAN APPROACH TO INVERSE PROBLEM IN CONSOLIDATION AND ITS APPLICATION TO SETTLEMENT PREDICTION.

Asaka, A. M. Matsuo, Minori
 Kyoto Univ, Jpn
 Numer Methods in Geomech Aachen 1979. Proc of the Int Conf. 3rd, v 1. Aachen, Ger. Apr 2-6 1979 Publ by A. A. Balkema, Rotterdam, Neth, 1979 p 115-123
 The paper discusses the inverse problem of one-dimensional consolidation equation when the observation is restricted only to the settlement behavior on the top of soil strata. The master equation of settlement-time relationship is derived from a consolidation equation as a form of linear ordinary differential equation with constant coefficients under the conditions of both increasing and constant external consolidation pressure. The master differential equation is reduced to a difference form, an autoregressive equation, which gives a suitable form to statistical parameter identification from field observation data of settlement through Bayesian analysis. The least square quantities are demonstrated to provide allowable estimators for unknown coefficients of an autoregressive equation.
 DESCRIPTORS: (*SOIL MECHANICS, *Consolidation), STATISTICAL METHODS, (FOUNDATIONS, Settlement),
 CARD ALERT 483, 931, 922

1071109 ID NO. E1800971109
NUMERICAL METHODS IN GEOMECHANICS AACHEN 1979. PROCEEDINGS OF THE INTERNATIONAL CONFERENCE, 3RD, VOLUMES 1-3, 1979.

Witte, W (Ed)
 Univ of Aachen, Inst for Found Eng. Soil Mech. Rock Mech & Water Ways
 Numer Methods in Geomech Aachen 1979. Proc of the Int Conf. 3rd, Aachen, Ger Apr 2-6 1979 Publ by A. A. Balkema, Rotterdam, Neth, 1979 3 v, 1252 p
 The three proceedings volumes contain 126 papers presented at the Conference, 100 of which are indexed separately. The papers are grouped under general topic headings that include theoretical developments, flow and consolidation, constitutive laws (volume 1), rock behavior, underground openings, embankments and slopes, and dynamics (volume 2). Soil-structure interactions in foundations and in retaining structures (volume 3). Among the mathematical techniques discussed in the papers are finite elements and finite differences, boundary integrals, matrices, mathematical modeling, statistical analysis, variational techniques, nonlinear analysis, probability, and others.
 DESCRIPTORS: *SOIL MECHANICS, ROCK MECHANICS, (MATHEMATICAL TECHNIQUES, Numerical Methods), STATISTICAL METHODS, FOUNDATIONS, GEOLOGY,
 IDENTIFIERS: GEOMECHANICS, GEOLOGICAL MATERIALS, CONSTITUTIVE MODELS, SLOPE STABILITY, PROBABILISTIC MODELS
 CARD ALERT 483, 931, 481, 921, 922

1070232 ID NO. E1800970232
STABILITY ANALYSIS OF ROCK SLOPES WITH RESPECT TO STATISTICAL ASPECTS.

Deutsch, R. R.
 RuhrtaalSperrver Essen, Ger
 Numer Methods in Geomech Aachen 1979. Proc of the Int Conf. 3rd, v 2. Aachen, Ger. Apr 2-6 1979 Publ by A. A. Balkema, Rotterdam, Neth, 1979 p 791-795
 The stability of slopes in jointed rock is mainly influenced by geological discontinuities. Beside extension, spacing and strength, the most important parameter is the orientation of these planes. In order to assess the influence of discontinuities on the stability of rock slopes, in many cases the orientation mean of identified joint sets and the estimated average strength parameters can be introduced in the stability analyses. But if values deviate to a greater extent from those means, the scattering has to be considered. In this paper a method is proposed which enables stability analyses of rock slopes taking joint statistics into account.
 Refs.
 DESCRIPTORS: (*ROCK MECHANICS, *Stability), STATISTICAL METHODS,
 IDENTIFIERS: ROCK SLOPES, ROCK JOINTS
 CARD ALERT 483, 502, 922

1067311 ID NO. E1800967311
APPLICATION OF PROBABILITY THEORY TO THE FINITE ELEMENT METHOD IN PREDICTING SETTLEMENTS IN SOFT BANGKOK CLAY.

Sivandran, C.; Chiev, Khut; Balasubramaniam, A. S.
 Asian Inst of Technol, Bangkok, Thailand
 Numer Methods in Geomech Aachen 1979. Proc of the Int Conf. 3rd, v 3. Aachen, Ger. Apr 2-6 1979 Publ by A. A. Balkema, Rotterdam, Neth, 1979 p 1025-1032
 The concept of probability and statistics is an approach towards quantifying in a consistent and organized manner the uncertainties involved in analysis rather than depending on safety factors. With the development of probabilistic methods, it is now possible to handle the spatial variation of soil properties, and also to determine the risks involved depending on the nature of the uncertainties. This paper reports on a study that endeavors to establish probability models for describing spatial variations of soil properties. The soil heterogeneity is simulated from these models for the finite element mesh. For this purpose, a full scale test embankment built rapidly to failure has been chosen. The embankment was built on soft Bangkok clay.
 DESCRIPTORS: (FOUNDATIONS, *Settlement), PROBABILITY, CLAY, SOIL MECHANICS, (MATHEMATICAL TECHNIQUES, Finite Element Method),
 CARD ALERT 405, 483, 922

1065667 ID NO. - E1800965667
PHYSICAL CLAY CREEP MODEL AND ITS MATHEMATICAL ANALOGY.
 Pusch, R
 Univ of Lubna, Sweden
 Numer Methods in Geomech Aachen 1979, Proc of the Int Conf, 3rd, v 1, Aachen, Ger, Apr 2-6 1979 Publ by A. A Balkema, Rotterdam, Neth, 1979 p 485-492
 Natural soft illitic clays are characterized by a heterogeneous microstructure. The application of a sufficiently high deviator stress produces translation and rotation of rigid aggregates in connection with the formation of groups of parallel flaky particles which behave as slip units. The movements of these units, which produce bulk creep strain, represent a thermally assisted passage over energy barriers aided by external stress. The large variation in barrier height suggests the use of statistical mechanics for the mathematical description of a plausible physical model. This paper presents such a model and a simplified mathematical analogy for undrained conditions.
 DESCRIPTORS: (-CLAY, *Creep). SOIL MECHANICS, STATISTICAL METHODS, MATHEMATICAL MODELS.
 CARD ALERT: 483, 421, 931, 922

1063383 ID NO. - E1800863375
FACTOR ANALYSIS AS A BASIS FOR REGRESSION PROCEDURES WITH SOIL PARAMETERS.
 Riepert, F. R.; Raabe, E. W.
 Tech Univ, Braunschweig, Ger
 Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf (ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979 Sponsored by Unisearch Ltd, Kensington, NSW, Aust, 1979 v 1 p 59-70
 The paper introduces a new procedure for using factor analysis as the basis of a study of regressive relations between individual variables. The data to be investigated, taken from a population, are first subjected to factor analysis. This provides the actual factor pattern as well as a matrix with the linear correlation coefficients between the variables. In contrast to the correlation matrix, the factor pattern allows the recognition of all relations existing in the body of data. This includes the recognition of possible dependencies from values which had not been introduced up to that point.
 DESCRIPTORS: (-SOILS, *Analysis), STATISTICAL METHODS, SOIL MECHANICS.
 IDENTIFIERS: FACTOR ANALYSIS
 CARD ALERT: 483, 922

1063375 ID NO. - E1800863375
SLOPE STABILITY AND THE BEARING CAPACITY OF SHALLOW FOUNDATIONS ON SLOPES.
 Schultze, E
 Tech Hochschule Aachen, Ger
 Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf (ICASP), Proc, Sydney, Aust, Jan 29-Feb 2 1979 Sponsored by

Unisearch Ltd, Kensington, NSW, Aust, 1979 v 3 p 198-279
 The paper presents a state-of-the-art review of statistical applications in civil engineering practice, with respect to slope stability. An attempt is made to provide a clear perspective of the developments in this special area, so that more detailed information can be obtained from the cited literature where necessary. Major topics discussed include statistical analysis of slopes, loads, soil strength, dispersion of soil parameters, methods of calculating stability and failure probability, surcharge (slope foundation failure), and optimization of costs. Refs
 DESCRIPTORS: (-SOIL MECHANICS, *Stability), (FOUNDATIONS, Bearing Capacity), STATISTICAL METHODS, (SOILS, Mechanical Properties).
 IDENTIFIERS: SLOPE STABILITY
 CARD ALERT: 483, 931, 922

1063374 ID NO. - E1800863374
INFORMATION THEORY APPROACH TO SLOPE STABILITY.
 Papantonopoulos, C. I.
 Ec Polytech, Montreal, Que
 Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf (ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979 Sponsored by Unisearch Ltd, Kensington, NSW, Aust, 1979 v 2 p 466-476
 This paper, adopting limit equilibrium methodology, shows how information theory can be used in order to solve the stress distribution decision problem. The stress distribution is shown to depend on an unknown probability-distribution function. For a given rupture surface the unknown probability-distribution function and the corresponding factor of safety are uniquely determined by using the notion of entropy (uncertainty) as criterion for setting up prior probability assignments. An example problem illustrates the procedure and presents comparisons with other well known methods. 26 refs.
 DESCRIPTORS: (-SOIL MECHANICS, *Stability), INFORMATION THEORY, DECISION THEORY, (STRESSES, Analysis), PROBABILITY.
 IDENTIFIERS: SLOPE STABILITY
 CARD ALERT: 483, 931, 922

1063373 ID NO. - EIRO063373
ON THE PROBABILITY OF FAILURE OF SLOPES.

Stratton, D.; Forster, W.; Weber, E.
Bergbau und Bergbau, E. Ger
Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf
(ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979 Sponsored by
Unisearch Ltd, Kensington, NSW, Aust, 1979 v 2 p 455-465
A stochastic variant of O. K. Frohlich's method is
presented which gives formulas for the probability of failure
of slopes. It is assumed that cohesion and angle of
internal friction form random fields, whose parameters can be
determined by means of usual methods of geostatistics. The
model assumptions are verified by a statistical analysis of
soil samples.
DESCRIPTORS (*SOIL MECHANICS, *Stability), (PROBABILITY,
Failure).
IDENTIFIERS SLOPE STABILITY
CARD ALERT 483, 931, 922

1063372 ID NO. - EIRO063372
PREDICTION OF SLOPE SLIDE BY PROBABILITY OF FAILURE.

Matsuo, M.; Ueno, M.
Nagoya Univ, Jpn
Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf
(ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979 Sponsored by
Unisearch Ltd, Kensington, NSW, Aust, 1979 v 2 p 449-458
The paper proposes a prediction method for assessing slope
stability under heavy rainfall. The method requires rainfall
intensity as input and examines the transition process of the
probability of failure P/F during and after a rainfall. It
is based on an analysis of actual sliding and stable slopes,
that indicated important facts associated with the transition
process of P/F .
DESCRIPTORS (*SOIL MECHANICS, *Stability), FAILURE ANALYSIS,
PROBABILITY.
IDENTIFIERS SLOPE STABILITY
CARD ALERT 483, 931, 922

1063371 ID NO. - EIRO063371
MARGIN OF SAFETY FOR SLOPE STABILITY.

Bieniekowski, K.
Inst Geotech Politech, Wroclaw, Pol
Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf
(ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979 Sponsored by
Unisearch Ltd, Kensington, NSW, Aust, 1979 v 2 p 431-436
The paper presents a slope stability measure based on an
analysis of stresses and soil resistance. On the basis of
this measure, a safety margin for stability is proposed, which
uses statistical information on soil parameters, significant
of the object and accuracy of computation methods which differ
in formulation of stability criteria that are conditions for
safety. Other possibilities of probabilistic analysis of
slope stability are mentioned. Refs.
DESCRIPTORS (*SOIL MECHANICS, *Stability), PROBABILITY.

IDENTIFIERS SLOPE STABILITY, PROBABILISTIC ANALYSIS
CARD ALERT 483, 931, 922

1063368 ID NO. - EIRO063368
PROBABILISTIC APPROACH TO CONSOLIDATION ANALYSIS.

Chang, C. S.; Soong, T. T.
Univ of Mass, Amherst
Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf
(ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979 Sponsored by
Unisearch Ltd, Kensington, NSW, Aust, 1979 v 2 p 487-496
This study is concerned with an extension of the theory of
one-dimensional consolidation to the study of soil behavior by
taking into account randomness in the coefficient of
consolidation, C_v . By assuming a probabilistic distribution
of C_v , the consolidation equation is solved stochastically.
For a practical range of variability in the values of C_v , the
solution shows a substantial effect on the randomness of the
degree of consolidation. Curves based on this solution are
also developed for providing a procedure in estimating
probability range of the degree of consolidation at a certain
time. A numerical example is included. 2 refs.
DESCRIPTORS (*SOIL MECHANICS, *Consolidation), PROBABILITY.
CARD ALERT 483, 931, 922

1063367 ID NO. - EIRO063367
SETTLEMENT PREDICTION OF EXTENSIVE RECLAIMED LAND.

Asaka, A.; Suzuki, M.
Kyoto Univ, Jpn
Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf
(ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979 Sponsored by
Unisearch Ltd, Kensington, NSW, Aust, 1979 v 2 p 477-486
The paper presents an observational procedure of settlement
prediction. First, an autoregressive equation derived is
shown to give an appropriate time series model for
settlement-time behavior resulting from one dimensional
consolidation. The coefficients contained in this equation
are related to a drain condition, time factor of consolidation
and a final settlement. With the use of settlement
observations these parameters are statistically identified. A
future settlement is also predicted by statistical
extrapolation along the autoregressive model with identified
parameters. Two practical methods are presented. One is a
graphical method; the other is a method based on the Bayesian
approach applied in the analysis of normal autoregressive
process, which can give a predictive probability distribution
of future settlement. 6 refs.
DESCRIPTORS (*SOIL MECHANICS, *Consolidation), STATISTICAL
METHODS, SUBSIDENCE, GRAPHIC METHODS.
CARD ALERT 483, 931, 922

1063365 ID NO. - E1800863365
APPLICATIONS OF CLUSTER ANALYSIS TO SEISMIC MICROZONATION.
 Crespiellani, T. J. Loi, A
 Univ of Cagliari, Italy
 Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf (ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979. Sponsored by Unisearch Ltd, Kensington, NSW, Aust, 1979 v 3 p 395-401
 In a given seismic area there exist several natural subsoil conditions that contribute to influence its behavior under earthquake. In the investigation of soil properties for microzonation studies, a convenient mathematical tool is offered by cluster analysis. Advantages and limits in the use of this technique are presented and discussed. Refs.
 DESCRIPTORS: *SOIL MECHANICS, EARTHQUAKES, STATISTICAL METHODS, (SOILS, Analysis).
 IDENTIFIERS: CLUSTER ANALYSIS, MICROZONATION
 CARD ALERT 483, 931

1063364 ID NO. - E1800863364
ASSESSMENT OF THE PROBABILITY OF LIQUEFACTION OF WATER-SATURATED RECLAIMED LAND.
 McGuire, R. K.; Tatsunaka, F.; Iwasaki, T.; Tokida, K.
 US Geol Surv
 Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf (ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979. Sponsored by Unisearch Ltd, Kensington, NSW, Aust, 1979 v 2 p 786-801
 A method is described for assessing the probability of liquefaction of water-saturated, reclaimed land. The method accounts for the uncertain shear resistance of sand deposits when only standard penetration values and sand gradings are available. Seismically-induced shear stresses are estimated from surface accelerations modified to account for the duration of shaking, and the analysis incorporates uncertainty in acceleration resulting from uncertainty in the size and distance of the critical event. The definition of liquefaction uses a damage function proportional to the integral over depth of the ratio of shear resistance to shear stress. A site on Tokyo Bay is examined using the method. Refs.
 DESCRIPTORS: *SOIL MECHANICS, EARTHQUAKES, PROBABILITY.
 IDENTIFIERS: LIQUEFACTION
 CARD ALERT 483, 931, 922

1063363 ID NO. - E1800863363
JOINT DISTRIBUTION OF THE COMPONENTS OF SOIL STRENGTH.
 Athanasio-Grivas, D. A.; Marston William, V.
 Pennsylvan Polytech Inst, Troy, NY
 Appl of Stat and Probab in Soil and Struct Eng, 3rd, Int Conf (ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979. Sponsored by Unisearch Ltd, Kensington, NSW, Aust, 1979 v 1 p 183, 197
 The paper reports on a study to examine the joint variation of the two components of soil strength ϕ and c cohesion and angle of internal friction ϕ and to provide a

probabilistic model for its description. The proposed model is the bivariate beta (Dirichlet) distribution, the analytical expression of which depends on the mean values, variances and correlation coefficient of the two strength parameters. The two marginal distributions that are derived from the Dirichlet are found to follow the beta model. Making use of the cumulative joint and marginal distributions, it is possible to determine design values for both parameters that correspond to specified confidence levels, which is illustrated by a case study.

DESCRIPTORS: *SOIL MECHANICS, (PROBABILITY, Mathematical Models), (SOILS, Testing), (MATERIALS, Mechanical Properties).
 CARD ALERT 483, 931, 922

1063362 ID NO. - E1800863362
SOME CRITERIA FOR DATA ANALYSIS.
 Weiss, K.
 Tech Univ, Berlin, Ger

Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf (ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979. Sponsored by Unisearch Ltd, Kensington, NSW, Aust, 1979 v 1 p 71-84
 Using a numerical example relating to the problem of the influence of the foundation shape on the ultimate bearing capacity of square foundations, two criteria are explained which are of significance for correct analysis of test data. Causal relationships cannot be revealed by purely statistical methods of approach. A theoretically clear statement on the functional relationship between such test data as can be varied arbitrarily or in dependence from other data is a basic prerequisite for meaningful data analysis. If the theoretical functional relationship between the variables observed is not linear, data analysis is normally linearized by suitable transformation and then solved by the principle of minimum variance. A criterion is presented dealing with the pre-conditions under which linearization will be admissible without subsequent correction.

DESCRIPTORS: *SOIL MECHANICS, STATISTICAL METHODS, (SOILS, Testing), (FOUNDATIONS, Bearing Capacity).
 IDENTIFIERS: DATA ANALYSIS
 CARD ALERT 483, 931, 922

1062827 ID NO - E1800862827
RELIABILITY ANALYSIS OF RETAINING STRUCTURES.

Reusselae Polytech Inst., Troy, NY
 Appl of Stat and Probab in Soil and Struct Eng. 3rd Int Conf (ICASP 3), Proc., Sydney, Aust., Jan 29-Feb 2 1979 Sponsored by Unisearch Ltd., Kensington, NSW, Aust., 1979 v 2 p 632-654
 The paper reports on a study to examine some of the uncertainties that are involved in the description of the lateral pressures against retaining walls, and to determine the probability of failure of such structures through an application of a system reliability analysis. The method of redistribution of pressure is employed along the wall. The expression for the pressure distribution through its safety of the retaining wall is measured through its probability of failure rather than the customary factor of safety. Four possible modes of failure are examined: overturning, base sliding, bearing capacity and overall sliding. Assuming that each mode occurs independently of the others, a single value for the probability of failure of the wall is found through a system reliability analysis. Refs.
 DESCRIPTORS (-RETAINING WALLS, •Reliability), (PROBABILITY, Failure), SOIL MECHANICS.
 CARD ALERT 405, 483, 922

1062494 ID NO - E1800862494
EXTREMES OF MOVING AVERAGE PROCESSES.

Grigorov, M
 Acres Consult Serv Ltd, Niagara Falls, Ont
 Appl of Stat and Probab in Soil and Struct Eng. 3rd Int Conf (ICASP 3), Proc., Sydney, Aust., Jan 29-Feb 2 1979 Sponsored by Unisearch Ltd., Kensington, NSW, Aust., 1979 v 1 p 95-109
 Averages of an input process depending continuously and discretely on time. Called respectively moving average processes and sequences, are considered. The time step of the moving average sequence is equal to the averaging period. Results obtained for Gauss Markovian inputs show that unsafe designs may result if maxima of moving average processes are approximated by those of moving average sequences. Practical implications of this approximation are investigated in two case studies. Refs.
 DESCRIPTORS •PROBABILITY, (ENGINEERING, Applications), WINO EFFECTS, (SOIL MECHANICS, Stability).
 IDENTIFIERS MOVING AVERAGE PROCESSES
 CARD ALERT 922, 443, 487

1062057 ID NO - E1800862057
PILE CAPACITY SEM DASHES A RELIABILITY APPROACH.

Madhav, M R ; Arumugam, A
 Indian Inst of Technol, Kanpur
 Appl of Stat and Probab in Soil and Struct Eng. 3rd Int Conf (ICASP 3), Proc., Sydney, Aust., Jan 29-Feb 2 1979 Sponsored by Unisearch Ltd., Kensington, NSW, Aust., 1979 v 2 p 529-538
 To account for the variability of soils over large depths it

is desirable to use probabilistic methods to estimate the load carrying capacity of the piles. A reliability based method is proposed using Monte Carlo simulation techniques. A parametric study is carried out for piles in clays and sands and the importance of parameters like cohesion, adhesion, angle of shearing resistance, length to diameter ratio of pile, etc., is highlighted. Results are presented in the form of plots between probability of failure and normalized load.
 18 refs.
 DESCRIPTORS (-PILES, •Bearing Capacity), SOIL MECHANICS, (PROBABILITY, Failure).
 CARD ALERT 405, 483, 922

1062056 ID NO - E1800862056
ESTIMATION OF THE BEARING CAPACITY OF LARGE BORED PILES IN COHESIVE SOILS USING STATISTICAL METHODS

Ritzkallan, V J ; Maschowitz, G
 Tech Univ, Hannover, Ger
 Appl of Stat and Probab in Soil and Struct Eng. 3rd Int Conf (ICASP 3), Proc., Sydney, Aust., Jan 29-Feb 2 1979 Sponsored by Unisearch Ltd., Kensington, NSW, Aust., 1979 v 2 p 517-528
 The paper reports on a study to find a simple formula, based on statistical methods, to estimate the bearing capacity of large bored piles. Using data of pile load tests executed in similar cohesive soil, such as the well known results in London Clay, it was possible to find a satisfactory solution, based on statistics. Data concerning the shear strength and ultimate bearing pressure versus depth were used to estimate the end bearing and the skin friction of piles. Concerning the statistical investigation the regression analysis method was used. The formula depends on three variables: end bearing, skin friction and displaced volume due to settlement. Using these variables, the maximum capacity was calculated and a correlation factor of $r=0.82$ was obtained. The relative error which can be expected when using this formula is about 20%. 11 refs.
 DESCRIPTORS (-PILES, •Bearing Capacity), STATISTICAL METHODS, SOIL MECHANICS.
 CARD ALERT 405, 483, 922

1059933 ID NO. - E1800859933
APPLICABILITY OF REGRESSION ANALYSIS TO INVESTIGATE THE INFLUENCES ON THE CARRYING CAPACITY OF GROUND ANCHORS.

Kramer, H.
 Tech Univ. Hannover, Ger
 Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf (ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979 Sponsored by Unisearch Ltd, Kensington, NSW, Aust, 1979 v 2 p 437-448

This paper describes the application of multiple regression analysis to the results of fundamental and suitability tests of ground anchors. Individual factors that influence the capacity of ground anchors were investigated. Two equations to estimate the carrying capacity are proposed, one for anchors in granular soil and the other for those in cohesive soil. The constants of both equations, including 7 influence factors in each case, have been determined by means of the linear multiple regression analysis. Using a confidence level of 95% the confidence bounds of the regression coefficients have been calculated. Refs.

DESCRIPTORS: (*FOUNDATION, *ANCHORAGES), STATISTICAL METHODS, SOIL MECHANICS.
 IDENTIFIERS: MULTIPLE REGRESSION ANALYSIS
 CARD ALERT 405, 483, 922

1058040 ID NO. - E1800858040
STATISTICAL EVALUATIONS OF THE STRENGTH CHARACTERISTICS OF BANGKOK CLAY.

Balasubramanian, A. S.; Adikari, G. S. N.; Sivandran, C.
 Asian Inst of Technol, Bangkok, Thai
 Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf (ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979 Sponsored by Unisearch Ltd, Kensington, NSW, Aust, 1979 v 1 p 198-211

This paper presents a statistical analysis of the undrained shear strength of Soft Bangkok Clay. The analysis presented consists mainly of a study of the variation in the probability distribution of the undrained strength as a function of depth and other properties using regression models. A comparison of the estimated models for the various tests is made. Factor analysis of the laboratory test data is also presented, which justified the previous findings. A statistical analysis of the associated soil properties has also been presented for the many sites considered in the overall study.

DESCRIPTORS: (*CLAY, *MECHANICAL PROPERTIES), STATISTICAL METHODS, (SOILS, TESTING), SOIL MECHANICS.
 IDENTIFIERS: SOIL PROPERTY VARIABILITY, FACTOR ANALYSIS
 CARD ALERT 483, 421, 922

1058027 ID NO. - E1800858027
PROCEEDINGS, INTERNATIONAL CONFERENCE SEM DASH'S APPLICATIONS OF STATISTICS & PROBABILITY IN SOIL & STRUCTURAL ENGINEERING, 3RD (ICASP 3), VOLUMES 1 THROUGH 3, 1979.

Inglis, Owen G. (Ed.)
 Univ of NSW, Dep of Civ Eng Mater, Sydney, Aust
 Appl of Stat and Probab in Soil and Struct Eng, 3rd Int Conf

(ICASP 3), Proc, Sydney, Aust, Jan 29-Feb 2 1979 Sponsored by Unisearch Ltd, Kensington, NSW, Aust, 1979 v 1 p 1319 p
 The three Proceedings volumes contain 87 papers presented at the Conference, 76 of which are indexed separately. The papers are grouped under general topic headings that include statistical techniques and data analysis, extreme value theory, structural load systems, soil classification and site investigation, properties of structural materials, pavements, slope stability, foundations, structural response, hydrology and hydraulics, safety, reliability, risk analysis and insurance, optimization, cost-benefit analysis, Specification, earthquakes, human factors and errors.

DESCRIPTORS: *CIVIL ENGINEERING, STATISTICAL METHODS, STRUCTURAL ANALYSIS, STRUCTURAL DESIGN, SOIL MECHANICS, HYDROLOGY.
 IDENTIFIERS: SLOPE STABILITY, PROBABILISTIC DESIGN, STABILITY ANALYSIS, STOCHASTIC PROCESSES, RISK ANALYSIS
 CARD ALERT 901, 483, 408, 931, 922, 444

1040613 ID NO. - E1800540613
PROBABILISTIC SOIL DYNAMICS: STATE-OF-THE-ART

Christian, John T.
 Stone & Webster Eng Corp, Boston, Mass
 ASCE J Geotech Eng Div v 106 n 4 Apr 1980 p 385-397
 CODEN: AJGEB6

The powerful random vibration techniques can provide probabilistically based descriptions of the response of soils and structures to earthquakes and ocean waves. Although the technology is well developed and uses many of the results of fourier transform analyses, its general use is retarded by its unfamiliarity and by a substantial tradition behind the description of earthquakes by deterministic methods. Probabilistic analyses of the formal theories of liquefaction have identified many of the uncertainties in these theories and shown that they include quite significant errors. Statistical methods have proven useful in interpreting the historical records of occurrence of liquefaction. The major deficiency as of this writing is in the consistency of the historical data base rather than the analytical tools. Statistical methods have had some use in describing dynamic soil properties. 51 refs.

DESCRIPTORS: (*SOIL MECHANICS, *Mathematical Models), DYNAMICS, EARTHQUAKES, PROBABILITY, STATISTICAL METHODS, IDENTIFIERS: SOIL DYNAMICS, SOIL LIQUEFACTION
 CARD ALERT 483, 931, 921, 484, 922

1010488 ID NO - E1800540688
SLOPE RELIABILITY MODELS IN PIT OPTIMIZATION.
 Baerher, Gregory B. Einstein, Herbert H
 MIT, Cambridge, Mass
 Appl of Comput and Oper Res in the Miner Ind, 16th, Tucson, Ariz, Oct 17 19 1979 Publ by Soc of Min Eng. AIME, New York, NY, 1979 p 501-512
 The growing use of optimization in pit mine design has increased interest in the way predictions of slope stability are made. Slope angles and heights have traditionally been analyzed deterministically and treated as constraints in pit design, but models are now available for predicting probabilities of failure and probability distributions over failure volume. These new approaches and the models of rock mass behavior they are based on are reviewed. A discussion as short as the present cannot pretend to exhaustiveness, thus the intent is to examine underlying assumptions and leave details to referenced sources. 32 refs.
 DESCRIPTORS: *ROCK MECHANICS, MINES AND MINING.
 CARD ALERT 502, 483, 504, 505

1010804 ID NO - E1800176804
MECHANISM OF DEFORMATION OF PARTICULATE MATERIALS AS MARKOV PROCESS.
 Kitamura, Ryosuke
 Kagoshima Univ, Jpn
 Zairyo, v 28 n 311 Aug 1979 p 718-724 CODEN ZARAYO
 ISSN 0514 5163
 The micrometric approach which can establish the constitutive relations of particulate materials such as sand is described. In this approach the motion of particles in particulate materials is assumed to be a Markov process. First, the Markov process is explained briefly and the basic equation of the Markov process is derived. Secondly, the Markov process is applied to the mechanical behavior of particulate materials, and the concepts of potential barrier and potential slip plane are introduced to determine the coefficients in the basic equation of the Markov process. Thirdly, the strain of particulate materials is derived by averaging the motion of particles. Finally, the stress-strain relationship obtained from the micrometric approach is compared with the result of the drained triaxial compression test on Toyoura Sand. In Japanese.
 DESCRIPTORS: *MATERIALS SCIENCE, STATISTICAL METHODS, SOIL MECHANICS, *SAND AND GRAVEL, MECHANICAL PROPERTIES.
 IDENTIFIERS: PARTICULATE MATERIALS
 CARD ALERT 421, 931, 922, 487

1025033 ID NO - E1800250533
STATISTICAL ANALYSIS OF GEOTECHNICAL RECORDS.
 Tabba, M. Mynassar, yong, Raymond N
 Natl Boring & Sounding Inc, Montreal, Que
 Proc ASCE Eng Mech Div Spec Conf, 3rd, Univ of Tex, Austin, Sep 17 19 1979 Publ by ASCE, New York, NY, 1979 p 331-334

The statistical approach recognizes the random nature of soil properties and resolves their structure as identified by soil fabric parameters, which enable prediction of the mean, variances and covariances of these properties at desired locations. This approach has been suggested and discussed previously by various researchers. Although the methods suggested by these authors are conceptually good, they lack practicality when data points are few, irregularly spaced and come from different sources. The analytical model presented in this paper overcomes these shortcomings. In addition, it permits the analysis of biased data and uses matrix formulation throughout, thus making it adaptable to computer applications. 5 refs.
 DESCRIPTORS: (*SOILS, *Mechanical Properties), STATISTICAL METHODS, (MATERIALS, Physical Properties), SOIL MECHANICS.
 (CARD ALERT 483, 421, 922)

1025015 ID NO - E1800325015
RELIABILITY OF EARTH SLOPES.
 Tobutt, D. C., Richards, E. A
 HEBC, London, Engl
 Int J Numer Anal Methods Geomech v 3 n 4 Oct Dec 1979 p 323-354 CODEN IJNGDZ
 Methods recommended for calculating the probability of failure of earth slopes, as distinct from factor of safety, are discussed. In particular the 'level III' and 'level II' approaches as defined by the Joint Committee of Structural Safety are referred to; these are set forth in 'Rationalisation of safety and serviceability factors in structural codes'. Technical Report 63 of the Construction Industry Research and Information Association, and attention is drawn to the contributions therein by M. J. Baker and M. Horne, and to how these considerations affect this particular problem. The mechanical model used throughout is Bishop's simplified method. 17 refs.
 DESCRIPTORS: (*SOIL MECHANICS, *Stability), (EMBANKMENTS, Reliability), IDENTIFIERS: EARTH SLOPES, SLOPE STABILITY
 CARD ALERT 483, 931

1025012 ID NO - E1800725012
RELATIVE ACCURACY AND MODIFICATION OF SOME DYNAMIC PILE
CAPACITY PREDICTION EQUATIONS.

Ramey, George E.; Johnson, Roy C. Jr
Auburn Univ, Ala
Ground Eng v 12 n 6 Sep 1979 p 47-50 CODEN: GROEAV
ISSN 0017-4653

Measured capacities of various pile types driven into cohesionless and cohesive soils were compared with capacities predicted by the Engineering News, Modified Engineering News, Hiley, Danish and Gates equations. Linear regression analyses were performed to evaluate slope and intercept modification values for each equation. The analyses indicated that the EN equation probably provided the best overall correlation between predicted and measured pile failure load. Other investigators cited in the article found the equation to rate highly or poorly relative to other prediction equations. These considerable differences in relative performances of various impact equations with differing data sets indicate the strong data set dependency in making judgments on the equations' relative accuracies or correlations.

DESCRIPTORS: *SOIL MECHANICS, PILES, STATISTICAL METHODS, IDENTIFIERS, DYNAMIC PILE CAPACITY
CARD ALERT 483, 931, 922

1016688 ID NO - E1800216688
PROBABILISTIC SITE-DEPENDENT RESPONSE SPECTRA

Kiremidjian, Anne S.; Shan, Hareesh C.
Stanford Univ, Calif
ASCE J Struct Div v 106 n 1 Jan 1980 p 69-86 CODEN: JSDEAG

A method is developed for obtaining probabilistic soil-dependent pseudo-absolute acceleration response spectra. The resulting spectra are consistent with the acceptable design risk level from future earthquakes at a specific site. Structural exposure to future earthquakes is obtained in terms of probabilities of peak ground acceleration values that can occur at firm grounds, intermediate soils, and soft soil sites. These are combined with gamma-distributed response spectral shapes (or dynamic amplification factors) and for firm grounds, intermediate soils, and soft soils. Strong earthquake ground-motion data from past seismic events are used as basis for the development of the response spectral shapes. The convolution of the probability distribution of peak ground acceleration with the corresponding probability distributions on response spectral shapes yield the probability distribution of pseudo-absolute acceleration response spectra as functions of structural period and damping. From them, response spectra for 10%, 20%, and 50% risk levels are developed at sites with firm, intermediate, and soft ground conditions. 14 refs.

DESCRIPTORS: (*STRUCTURAL DESIGN, *Earthquake Resistance), MATHEMATICAL MODELS, PROBABILITY, SOIL MECHANICS, DYNAMICS, IDENTIFIERS, DYNAMIC RESPONSE
CARD ALERT 408, 484, 921, 922, 483, 931

1016684 ID NO - E1800216684

PROCEEDINGS OF THE SOUTH PACIFIC REGIONAL CONFERENCE ON
EARTHQUAKE ENGINEERING, 2ND, VOLUMES 1 THROUGH 3, 1979.

Aron

NZ Natl Soc for Earthquake Eng, Wellington
Proc of the South Pac Reg Conf on Earthquake Eng, 2nd, Victoria Univ, Wellington, NZ, May 8-10 1979 Sponsored by NZ Natl Soc for Earthquake Eng, Wellington 3 vol 763 p

The three volumes contain 43 papers presented at the Conference, 24 of which are indexed separately. Among the subjects covered are a new proposal for estimating maximum earthquake forces at nuclear power plants, seismic design of highway bridges with soil-structure interaction, seismic risk and design criteria, assessing earthquake-induced soil liquefaction potential, dynamic earth pressure determination, structural performance of houses in earthquakes, seismic design of timber structures, earthquake forecasting probability charts, cyclic load testing of reinforced concrete beam-column joints, design of ductile reinforced concrete frames, hysteretic dampers for earthquake protection of structures, and others.

DESCRIPTORS: (*STRUCTURAL DESIGN, *Earthquake Resistance), (*STRUCTURAL ANALYSIS, Dynamic Response), (*FOUNDATIONS, Soil-Structure Interaction), BUILDINGS, (CONCRETE CONSTRUCTION, Reinforced Concrete), SOIL MECHANICS, IDENTIFIERS, SEISMIC RISK ANALYSIS, STRUCTURAL FRAMES, LIQUEFACTION, GROUND MOTION
CARD ALERT 408, 484, 931, 483, 402

1016246 ID NO - E1800216246

METAL VERSUS NONWOVEN FIBER FABRIC EARTH REINFORCEMENT IN
DRY SANDS: A COMPARATIVE STATISTICAL ANALYSIS OF MODEL TESTS.

Tumay, M. T.; Antonini, Mario; Arman, Ala

La State Univ, Baton Rouge
Geotech Test J v 2 n 1 Mar 1979 p 44-56 CODEN: GTJODJ
An experimental model study to compare the efficiency of metal and nonwoven fiber fabric reinforcement in mobilizing soil double shear. Model retaining walls were constructed in a sample box, sand was pluvially deposited at predetermined relative densities by a specially designed stationary depositor, and reinforcements were placed during deposition at varying levels and concentrations to meet the requirements of a statistical experimental setup. It was concluded that fiber fabric has advantages over the metal reinforcement used in the construction of reinforced earth structures. 25 refs.

DESCRIPTORS: (*SOIL MECHANICS, *Stabilization), IDENTIFIERS, EARTH REINFORCEMENT
CARD ALERT 483, 931

1016243 ID NO. E179116243
NONSTATIONARY RISK MODEL WITH GEOPHYSICAL INPUT
 Say, Jean B., Shah, Hareesh C.; Boore, David
 MIT, Cambridge, Mass
 ASCE J Struct Div v 106 n 1 Jan 1980 p 145-163 CODEN
 JSDFAS

A geophysical model of ground motion simulation is used to generate the statistics of the power spectral density (PSD) of the acceleration at the bedrock level of a site. A nonstationary Poisson model of occurrences is then developed to combine the effects of all the probable sources in the seismic zone of interest. The consistent probability PSD is computed as a basic design parameter. Consistent probability peak response spectra, rms response spectra, and pseudotime histories are also derived as design parameters. A numerical example is given for a site in southern California to demonstrate the applicability of the method. 21 refs.
 DESCRIPTORS: (*SOIL MECHANICS), *Mathematical Models, EARTHQUAKE RESISTANCE, GEOPHYSICS, Seismic, SEISMOLOGY, IDENTIFIERS, EARTHQUAKE ENGINEERING, GROUND MOTION
 CARD ALERT: 481, 931, 484, 481

1016245 ID NO. E179116245
NON CYLINDRICAL FLEXURAL SLIP FOLDING IN THE ARDWELL FLAGS
 Williams, Graham D.; Spall, John C.
 Univ Coll, Cardiff, Wales
 Tectonophysics v 58 n 3 4 Oct 1 1979 p 269-277 CODEN
 TECTAM

1554 (Jan 1951)
 Non cylindrical, flexural slip folding is described from the well known coastal section between Ardwell Bay and Kennedy's Pass, near Girvan, southwest Scotland. Bedding plane slip is recognized by the ubiquitous slickenside striations on bedding surfaces. Statistical treatment of the orientation of structural and kinematic elements yields important conclusions concerning fold formation. The Ardwell folds are markedly non-cylindrical and this is a primary feature amplified during the Ardwell Fold Phase. 19 refs.
 DESCRIPTORS: (*GEOLOGY, *tectonics), ROCK MECHANICS,
 CARD ALERT: 481, 483

999199 ID NO. E1791299199
PROBABILISTIC PROCEDURES FOR PEAK GROUND MOTIONS
 Blume, John A.; Kiremidjian, Anne S.
 URS/John A. Blume & Assoc., San Francisco, Calif
 ASCE J Struct Div v 105 n 11 Nov 1979 p 2293-2311 CODEN
 JSDFAS

Three methods of estimating the frequency of earthquake occurrence are presented: regression analysis of past earthquake data, integration of fault displacement data over long time periods, and consideration of plate boundary displacement rates. The models consider fault rupture as a function of magnitude when faults can be modeled as line

sources. When locations and activity rates are not known, seismically active regions are modeled as diffused area sources. The equation for attenuation of ground motion includes a soil impedance factor and a lognormal probability distribution on the data scatter. By applying the three procedures to a site for a nuclear power plant in southern California, it was determined that the plate boundary method yields lower peak ground motion values than the other methods at the same risk level. The highest peak ground acceleration values were predicted by the long period (20,000,000 yr) fault-dislocation method. 24 refs.
 DESCRIPTORS: (*STRUCTURAL DESIGN, *Earthquake Resistance), (*STRUCTURAL ANALYSIS, *Mathematical Models), PROBABILITY, EARTHQUAKES, SOIL MECHANICS, IDENTIFIERS, GROUND MOTIONS, SEISMIC SURVEYS
 CARD ALERT: 408, 484, 931, 922, 483

990262 ID NO. E1791190262
ICE BEHAVIOUR UNDER LOAD
 Zhuravskiy, Yu. K.; Chumichev, B. D.; Solomatina, V. I.
 Hydroproj Inst, Moscow, USSR
 Eng Geol v 13 n 1-4 Apr 1979, Int Symp on Ground Freezing, 1st, Bochum, Ger Mar 8-10 1978 p 299-309 CODEN: EGGDAD
 ISSN 0013-7952

Results of experimental investigations into the regularities of ice strain and failure under the conditions of short-time creep are given in this paper. The experiments were to test ice for creep under a uniaxial compressive stress, using the emission acoustic method of recording the microcrack formation. It is shown experimentally that the ultimate strength of ice signifying a maximum stress after which ice deforms plastically, without passing into the stage of accelerated flow, is consistent with the stress under which the process of microcrack formation begins. It was found that this limit is independent of temperature. As a result of the study, an analytical relationship was determined between defect number, stress and time, and an equation of ice strain has been deduced on the basis of statistical methods. This equation estimates temporal creep strain development, depending on stress, structural characteristics of ice and its temperature. 10 refs.
 DESCRIPTORS: (*SOILS, *Frozen), (GEOLOGY, Engineering), SOIL MECHANICS,
 CARD ALERT: 483, 481, 901, 931

980220 ID NO. - E1791190920
SEISMIC MOTION AND RESPONSE PREDICTION ALTERNATIVES.
 Cornell, C. Ailin, Banon, Hooshang; Shukla, Anthony F.
 MIT, Cambridge, Mass
 Earthquake Eng Struct Dyn v 7 n 4 Jul-Aug 1979 p 295-315
 CODEN EJEF86
 ISSN 0375 6207

Statistical methods are available which predict the maximum response of simple oscillators given the peak acceleration (A/p), peak velocity (V/p) or peak displacement (D/p) of seismic ground motions. An alternative parameter, namely an ordinate (ordinates) of the Fourier amplitude spectrum of ground motion acceleration, $FS(f)$, may in fact be a preferred predictor of peak response, especially in a frequency range close to f . Other statistical methods (attenuation laws) use distance R and other parameters such as magnitude (M). Modified Mercalli epicentral intensity (I/p) and Modified Mercalli site intensity (IM or I/s) to predict spectral velocity ($S/v(f)$), etc. In using such approaches, it is most desirable to know the total uncertainty in the predicted peak response of the system given the starting parameter values. An extensive strong motion data set is used to study these questions. The most direct prediction models are found in the preferable (have lower prediction dispersion) but data may not be available in all regions to permit their use. 18 refs.

DESCRIPTORS: *SOIL MECHANICS. SEISMIC WAVES. DYNAMICS. STATISTICAL METHODS.
 IDENTIFIERS: GROUND MOTION. PEAK RESPONSE
 CARD ALERT 483, 931, 484

989695 ID NO. - E1791199695
RAILROAD BALLAST LOAD RANKING CLASSIFICATION
 Raymond, Gerald P.; Diyaljee, Vishnu A
 Queen's Univ, Kingston, Ont
 ASCE J Geotech Eng Div v 105 n 10 Oct 1979 p 1133-1153
 CODEN AJGEB6

An investigation into the permanent deformation and degradation ranking (i.e., load ranking) of railroad ballast subject to laboratory repeated loading at a stress level comparable with those below North American heavy freight axle loads is reported. Some field data are also presented of plastic deformations, change in gradino, and production of fines are statistically linearly correlated with the aggregate physical characteristics. In general, the most significant physical characteristic is the aggregate hardness as measured by an autogenous grinding process termed Mill Abrasion. As the stress level increases above that related to railroad freight aggregate toughness as measured by the Los Angeles Abrasion becomes more significant. 19 refs.

DESCRIPTORS: (*RAILROAD PLANT AND STRUCTURES, *Embankments). RAILROADS. SOIL MECHANICS.
 IDENTIFIERS: RAILROAD BALLAST, MINERAL ANALYSIS
 CARD ALERT: 681, 433, 483, 931

982499 ID NO. - E1791082499
PROBABILISTIC MODEL OF BEARING CAPACITY FOR NON-COHEESIVE SOILS
 Vyas, S. K.; Dhillon, G. S.
 Punjab Agric Univ, Ludhiana, India
 Irrig Power v 36 n 1 Jan 1979 p 91-99 CODEN IRPWAA
 ISSN 0367-9003

Data for standard penetration, laboratory test and plate load tests, carried out in connection with field investigations, were collected. Penetration test was carried out to a maximum depth of 6.1 m. 10 refs.

DESCRIPTORS: *FOUNDATION, BEARING CAPACITY). *SOIL MECHANICS. MATHEMATICAL MODELS. PROBABILITY. (FOUNDATIONS, BEARING CAPACITY).
 IDENTIFIERS: NON-COHEESIVE SOILS
 CARD ALERT 483, 931, 921, 922, 405

981152 ID NO. - E1791081152
CASE HISTORIES-PILE DRIVING IN THE GULF OF MEXICO.
 Stockard, D. M.
 Petro-Mar Eng, Inc
 Offshore Technol Conf 11th Annu, Proc, Houston, Tex, Apr 30-May 3 1979 (Publ by Offshore Technol Conf, 6200 N. Central Expressway, Dallas, Tex, 1979 v 2 p 737-746 CODEN: OSTEBA)

This paper presents a series of case histories on pile driving in the Gulf of Mexico, demonstrating the value of a pile drivability analysis to the engineer planning an offshore pile driving operation. In this study, actual pile-driving records are compared with the results of pile drivability analyses. Piles in the study varied from 30 to 60 inches in diameter with penetrations to 340 feet. Steam hammers with energy ratings of from 60,000 to 300,000 foot-pounds were used. Soils varied from under-consolidated clays with easy driving to dense sands through which driving was very difficult. Also included in the studies is a simplified approach to pile drivability studies in which typical properties for soils, hammers, and cushions are used. In addition, various techniques are used to improve the probability of trouble-free pile driving.

DESCRIPTORS: (*PILES, *Driving). (OCEAN ENGINEERING, FOUNDATIONS). OFFSHORE STRUCTURES. SOILS. SOIL MECHANICS.
 CARD ALERT 405, 472, 483, 674

978735 ID NO - E1791078735

RELATION BETWEEN THE UNIAXIAL TENSILE STRENGTH AND THE SAMPLE SIZE FOR BOHUS GRANITE

Wijk, G.; Reinhardt, G.; Longistrom, G.
Atlas Copco, Cent Phys Lab, Stockholm, Swed
Rock Mech Felsmech Mec Roches v 10 n 4 Apr 1978 p 201-219
CODEN RMFMAS

An experimental investigation has shown that the uniaxial tensile strength of Bohus granite is independent of the sample size within a very large range of volume. An indirect measurement of the tensile strength such as the point load test does, however, yield the well-known decrease in strength with increasing sample volume. The reasons for these results are discussed and a theoretical extension of Weibull's statistical theory for the tensile strength of materials is used to indicate that the uniaxial tensile strength test may be a measurement of the minimum tensile strength of the bonding between the grains in the rock. 11 refs
DESCRIPTORS (*GRANITE, *Testing), ROCK MECHANICS.
CARD ALERT 414, 482, 483

978624 ID NO - E1791078624

TECTONIC SIGNIFICANCE OF JOINTS IN THE CANARY ISLANDS.

Schneider, A. E.
Tech Univ, Wien, Austria
Rock Mech Felsmech Mec Roches v 11 n 2 Sep 1978 p 69-85
CODEN RMFMAS

The orientations of joints were measured on four islands of the Canary Archipelago: Lanzarote, Gran Canaria, Tenerife and La Gomera. Although the rocks on these islands are mostly of volcanic origin, evidence is adduced that many joints can be considered as of tectonic origin and that those not of tectonic origin, viz those caused by shrinking of lava during cooling, can be expected to cancel out in a statistical evaluation procedure due to their random orientations. Accordingly, the data were processed by a statistical method of Kriblock and Schneider and preferential joint strikes were determined for the islands mentioned. 5 refs.
DESCRIPTORS (*GEOLOGY, *Tectonics), ROCK MECHANICS, STATISTICAL METHODS.
CARD ALERT 481, 483, 922

976513 ID NO - E1791076513

STATISTICAL INTERPRETATION OF SHOCK SERIES IN MINING.

Marcab, H.
Rock Mech Felsmech Mec Roches v 10 n 4 Apr 1978 p 181-186
CODEN RMFMAS

In many coal mines in Poland the mining shocks are being registered and interpreted to determine the danger caused by bumps. So far, no generally accepted theory has been developed which would help define the hazards involved on the basis of seismological measurements. The author analyzes the possibility of using such measurements, taking into account various mining and geological conditions. Size of studied

976437 ID NO - E1791076437

VARIABILITY AND ANISOTROPY OF MECHANICAL PROPERTIES OF THE PITTSBURGH COAL SEAM.

Book, Nevis E. Jr.; Ko, H. Y.; Gerstle, K. H.
Univ of Colo, Boulder
Rock Mech Felsmech Mec Roches v 11 n 1 Jun 1978 p 3-18
CODEN RMFMAS

Results of an experimental program to determine the vertical variation of material stiffness and strength of an important coal seam are presented, with the aim of providing information for realistic modeling for purposes of analysis. The seam is divided into four zones, and data from each are evaluated statistically. It is concluded that this seam contains two zones with measurably different properties, which, however, are small compared to the observed scatter of data. 6 refs.
DESCRIPTORS (*COAL DEPOSITS, *Pennsylvania), ROCK MECHANICS

CARD ALERT 503, 483

areas, and magnitudes of registered shocks. 4 refs
DESCRIPTORS (*COAL MINES AND MINING, *Poland), (ROCK MECHANICS, Poland), (GEOPHYSICS, Seismic), STATISTICAL METHODS
CARD ALERT 503, 483, 502, 481, 484, 922

973871 ID NO - E1790971871
DYNAMIC PROPERTIES OF FINE GRAINED SOILS.
 Farris, E. V. Jr.; Lytton, R. L.
 Tex A&M Univ. College Station
 Proc of the Int Conf on Soil Mech and Found Eng. 9th, Tokyo, Jpn. Jul 11-15 1977 Publ by Jpn Soc of Soil Mech and Found Eng. Tokyo, 1977 and 1978 v 2 p 217-224
 Three fine grained soils, varying in clay content between 20% and 70%, were tested in a unique repetitive loading apparatus to determine how soil suction, temperature, and stress state affect the resilient modulus and residual strains expected under highway and railroad loadings. In developing equations to predict these dynamic properties, three values of soil suction, stress intensity, and temperature were used in tests of each of the three soils in a statistically designed experiment. A fundamental change in the behavior of the tested soils from \$left double quote\$ effectively saturated \$right double quote\$ to \$left double quote\$ effectively unsaturated \$right double quote\$ occurs at a soil suction corresponding to two percent dry of the optimum moisture content. The critical soil suction is directly related to the clay content of the soils. 6 refs.
 DESCRIPTORS: (1)SOILS. (2)Testing). (ROADS AND STREETS. Stabilization). SOIL MECHANICS. MATHEMATICAL MODELS.
 IDENTIFIERS: FINE GRAINED SOILS. SOIL SUCTION
 CARD ALERT: 483, 421, 406, 931, 922

973803 ID NO - E1790973803
PROBABILISTIC ANALYSIS OF EXCAVATED EARTH SLOPES.
 Kraft, L. M. Jr.; Mukhopadhyay, J.
 McCalland Eng. Inc. Houston, Tex
 Proc of the Int Conf on Soil Mech and Found Eng. 9th, Tokyo, Jpn. Jul 11-15 1977 Publ by Jpn Soc of Soil Mech and Found Eng. Tokyo, 1977 and 1978 v 2 p 109-116
 The performance behavior of excavated earth slopes is statistically heterogeneous cohesive soils has been studied analytically by using the deformation on the slope boundary as a measure of the performance. The soil stress-strain response is modeled as nonlinear and inelastic using a hyperbolic expression. For comparison, elastic cases were studied also. The statistical heterogeneity of the soil strength is generated by Monte Carlo Simulation technique using log-normal probability distribution function, and the finite element method is used to calculate deformations and stresses. The results of the analysis are readily amenable to nondimensional graphic representation. The results are summarized in several graphs showing the quantitative influence of soil heterogeneity, number of tested soil samples, and the definition of failure on the selection of the safety factor for a requisite reliability. 30 refs.
 DESCRIPTORS: (1)SOIL MECHANICS. (2)Mathematical Models). EXCAVATION. (3)MATHEMATICAL TECHNIQUES. (4)Finite Element Method). STATISTICAL METHODS. PROBABILITY.
 IDENTIFIERS: PROBABILISTIC ANALYSIS. SLOPE STABILITY
 CARD ALERT 483, 931, 921, 405, 922

973794 ID NO - E1790973794
SIMULATION OF THREE-DIMENSIONAL STRONG GROUND MOTIONS ALONG PRINCIPAL AXES, SAN FERNANDO EARTHQUAKE.
 Kubo, Tetsuo; Penzien, Joseph
 Univ of Tokyo, Jpn
 Earthquake Eng Struct Dyn v 7 n 3 May-Jun 1979 p 279-294
 CODEN: IJEEBG
 ISSN 0375-6297
 Power spectral density which describes frequency content is considered one of the most significant properties to be taken into account when generating ground motions through the use of stochastic processes. Using a smoothed and normalized Fourier amplitude spectrum, frequency content for components of motion along a set of principal axes is estimated. Fourier amplitude spectra obtained by this moving-window technique are presented which show the time dependency of frequency content for motions produced by the San Fernando earthquake of February 9, 1971. A mathematical model to simulate ground motion processes is proposed for which both the intensity and frequency content are non-stationary. 11 refs.
 DESCRIPTORS: (1)SOIL MECHANICS. (2)SEISMIC WAVES. (3)Spectrum Analysis). (4)EARTHQUAKES. (5)San Fernando, California). STATISTICAL METHODS. MATHEMATICAL MODELS.
 IDENTIFIERS: GROUND MOTION. STOCHASTIC PROCESSES
 CARD ALERT: 483, 931, 484, 922

973793 ID NO E1790973793
ANALYSIS OF THREE-DIMENSIONAL STRONG GROUND MOTIONS ALONG
PRINCIPAL AXES, SAN FERNANDO EARTHQUAKE

Kubo, Tetsuo; Penzien Joseph
Univ of Tokyo, Jpn
Earthquake Eng Struct Dyn v 7 n 3 May Jun 1979 p 265-278
CODEN JEERG

ISSN 0375-6297
An orthogonal set of principal axes is defined for earthquake ground motions. These principal axes are obtained such that the corresponding variances of motion have maximum, minimum and intermediate values and the covariances equal zero. This indicates that the corresponding components of motion along the principal axes are uncorrelated with respect to each other. Since real earthquake accelerograms are assumed to be reasonably well represented by Gaussian random processes, the three components of motion along the principal axes are statistically independent of each other. Using these principal axes and applying the moving window technique to the ground accelerograms recorded during the San Fernando earthquake of February 9, 1971, time-dependent characteristics of three-dimensional ground motions along principal axes are determined. 18 refs.

DESCRIPTORS *SOIL MECHANICS. (EARTHQUAKES, San Fernando, California). (SEISMIC WAVES, Spectrum Analysis).
IDENTIFIERS GROUND MOTION
CARD ALERT 483, 931, 484

973792 ID NO E1790973792
ESTIMATION OF GROUND MOTION PARAMETERS.

Bourc, David M.; Joyner, William B.; Oliver, Adolph A. III.
Page, Robert A
US Geol Surv Circ n 795 1978 46 p CODEN XICIA5
ISSN 0043-1107

Strong motion data from western North America for earthquakes of magnitude greater than 5 are examined to provide the basis for estimating peak acceleration, velocity, displacement, and duration as a function of distance for three magnitude classes. A subset of the data (from the San Fernando earthquake) is used to assess the effects of structural size and of geologic site conditions on peak motions recorded at the base of structures. Small but statistically significant differences are observed in peak values of horizontal acceleration, velocity and displacement recorded on soil at the base of small structures compared with values recorded at the base of large structures. Some consideration is given to the prediction of ground motions at close distances where there are insufficient recorded data points. As might be expected from the lack of data, published relations for predicting peak horizontal acceleration give widely divergent estimates at close distances. Refs.
DESCRIPTORS *SOIL MECHANICS. SEISMIC WAVES. EARTHQUAKES, GEOLOGY.

IDENTIFIERS GROUND MOTION
CARD ALERT 483, 931, 484, 481

968932 ID NO E1790968932
DESIGN EARTHQUAKE MOTIONS BASED ON GEOLOGIC EVIDENCE.

Bell, James M.; Hoffman, Roy A
University Davis-Dixon Assoc, Pasadena, Calif
Proc of the ASCE Geotechn Eng Div Spec Conf Earthquake Eng and Soil Dyn, Pasadena, Calif, Jun 19-21 1978 Publ by ASCE, New York, N.Y. 1978 v 1 p 231-271

The determination of design earthquakes, ground motions and response spectra based on seismic risk analyses including geologic evidence is discussed in general and illustrated with results for an example site in the Los Angeles Harbor area. The site was underlain by approximately 300 feet of very dense sand and located about one mile from the Palos Verdes fault and about 7 miles from the Newport-Inglewood fault. The probability analyses included three seismic risk models with earthquake data records based on instrumental magnitudes, felt intensities, and geologic evidence. Emphasis is placed on the importance of historic earthquake data records based on geologic evidence. The fault risk model gave about 50% higher ground accelerations than the regional or area seismicity based on instrumental records. 47 refs.

DESCRIPTORS (-EARTHQUAKES, *Design). GEOLOGY. SOIL MECHANICS. (STRUCTURAL DESIGN, Earthquake Resistance).
IDENTIFIERS SEISMIC RISK ANALYSIS
CARD ALERT 484, 481, 483, 408

968696 ID NO. - E179098696
STOCHASTIC SEISMIC STABILITY PREDICTION OF EARTH DAMS.

Singh, Mahendra P.; Khata, Tara P.
 Va Polytech Inst & State Univ, Blacksburg
 Proc. of the ASCE Geotech Eng Div Spec Conf: Earthquake Eng
 and Soil Dyn. Pasadena, Calif., Jun 19-21 1978 Publ by ASCE,
 New York, NY, 1978 v 2 p 875-889

A method, based on stochastic principles, is presented for seismic stability prediction of earth dams. The problem of nonlinearity due to strain dependent soil properties is solved through the stochastic linearization technique; the formulation for applying this technique to a finite element discretization of a dam is developed. The method is iterative and step-wise linear. Stochastic description of seismic input in terms of spectral density function can be conveniently used in this method. The method can also be used directly with the ground response spectra curves usually prescribed in seismic designs. Zero crossing and peak statistics of the stress response are used to define the statistics of the stress damage. The application of the method is demonstrated with an example of an earth dam. 12 refs.
 DESCRIPTORS: (*DAMS, EMBANKMENT, *Stability), STATISTICAL METHODS, SOIL MECHANICS, (SOILS, Mechanical Properties), EARTHQUAKE RESISTANCES.

IDENTIFIERS: SEISMIC STABILITY, STABILITY ANALYSIS
 CARD ALERT: 441, 483, 931, 922

965855 ID NO. - E1790865855
UNCERTAINTY FINITE ELEMENT DYNAMIC ANALYSIS.

Dendrou, B. A.; Houstis, E. N.
 Purdue Univ, West Lafayette, Indiana
 Appl Math Modelling v 3 n 2 Apr 1979 p 143-150 CODEN
 AMMDOL

ISSN 0307-904X
 The prevention of damage to large earth structures due to dynamic effects necessitates an analytical model capable of predicting the response of the structure. A realistic model ought to consider the variability of the physical parameters describing the media. In this paper, authors present an uncertainty finite element model analysis based on a perturbation technique, considering the spatial distribution of the first and second statistical moments of the modulus of elasticity, Poisson's ratio and density, to be known. The proposed semistochastic analytical model is based on an inference correlative scheme which links the data sampling activities and a finite element dynamic model. Finally the sensitivity of the dynamic process to error in the input information is examined. 10 refs.
 DESCRIPTORS: (*STRUCTURAL ANALYSIS, *Dynamic Response), (SOIL MECHANICS, Mathematical Models), (MATHEMATICAL TECHNIQUES, Finite Element Method), (STATISTICAL METHODS, Applications), CARD ALERT: 931, 483, 922

SICHERHEITSNACHWEISE FUER EIN DAMMPROJEKT AUF
 PROBABILISTISCHER GRUNDLAGE. (left brackets) Safety Analysis
 of an Earth Dam on Probabilistic Basis (right brackets)

Schneffer, Eckart
 Str Tiefbau v 33 n 2 Feb 1979 p 10, 13-14 CODEN SITRAN
 Calculations for an earth dam are presented by application of the new concept. Since in soil mechanics statistical data cannot uniformly be assumed because of the heterogeneity of soils, the failure probability for the dam has been calculated with variances of the soil parameters. A comparison is made between the conventional and the new probabilistic safety concept. 9 refs. In German with English abstract
 DESCRIPTORS: (*DAMS, EMBANKMENT, *Structural Analysis), (PROBABILITY, SOIL MECHANICS, Safety Factor), MATHEMATICAL MODELS, CARD ALERT: 441, 931, 408, 921, 922, 483

938864 ID NO. - E1790538864
CITY PLANNING AND THE URBAN UNDERGROUND.

Jansson, Birger
 Vattenbyggnadsbyran, Gothenberg, Sweden
 Underground Space v 3 n 3 Nov-Dec 1978 p 99-115 CODEN
 UNSDQ9

Demand for subsurface space must be based on specific statistics and investigatory studies. Cost-benefit analysis, as well as liability and indemnity, are general considerations for all kinds of land use planning. The law and administrative rules should be recognized in a way which avoids unnecessary restriction of underground use, but which gives reasonable regulations for safe and rational use. The following five fields require specific knowledge of subsurface construction and subsurface use: internal environment, geology, geology and soil mechanics, and tunneling technology. The conclusion of the Swedish report is that subsurface planning should be seen as integrated planning within society's planning as a whole, that is, in close connection with surface planning.

IDENTIFIERS: URBAN PLANNING, TUNNELS AND TUNNELING, CARD ALERT: 403, 401

938799 ID NO. E1790538799
RELIABILITY OF ESTIMATING ROCK EXCAVATION COST IN TUNNELING SPECIFICATIONS.

Kurzmann, Ernst
 Rock Mech Felsmehc Mec Ruches Supply 7, 1978 Geol Reconnaissance. Tunneling - Min - Rock Support - Power Plant Constr. Contrib to the Geomech Colloq, 26th, Austrian Soc for Geomech, Salzburg, Oct 13-14 1977. Publ 1978 p 53-65 C00FN RMFNAS

Tunnel construction requires large investments, and all decisions influencing the cost of tunnel construction and maintenance should be based on reliable estimates. Since 30% to 50% of the total tunnel costs is accounted for by the cost of rock excavation, the reliability of estimating the quality and quantity of different rock classes in a specific project is an important problem to solve. This paper provides an answer to this and some other problems, focusing on reliability of geologic prediction in tunneling, geotechnical rock classification, statistically-based estimates of rock classes. A New Austrian Tunneling method (NAFM) is described 8 refs.

DESCRIPTORS: (*TUNNELS AND TUNNELING, *Costs), (ROCK DRILLING, Costs), ROCK MECHANICS, (GEOLOGY, Engineering).
 CARD ALERT 401, 405, 911, 483, 481

937829 ID NO. E1790537829
NEW SOIL-REINFORCEMENT INTERACTION MODEL.

Salomone, William G.; Holtz, Robert D.; Kovacs, William D.; Purdue Univ, West Lafayette, Indiana
 Symp on Earth Reinf. Proc of a Symp at the ASCE Annu Conv, Pittsburgh, Pa, Apr 27 1978 Publ by ASCE, New York, N.Y., 1979 p 714-73

The soil-reinforcement interaction model described in this paper provides an alternative approach for obtaining the distribution of tensile force in the reinforcement. All that is required is an estimate of the maximum tensile force in the reinforcement, along with its geometry and mechanical properties. For design, for example, the maximum force in the reinforcement can be estimated at failure by the Rankine or Coulomb theory for retaining structures or for embankments on soft foundations by elastic theory or by probability theory. The significance of the new approach is that the tensile force distributions also can be predicted for conditions other than failure. To illustrate how the new analytical procedure predicts the distribution of tensile force on the reinforcement, results of full scale pullout tests at a reinforced earth retaining wall in California were compared with the new theory. 12 refs

DESCRIPTORS: (*SOIL MECHANICS, *Stabilization), MATHEMATICAL MODELS, (SOILS, Stabilization), RETAINING WALLS, (EMBANKMENTS, Foundations).
 IDENTIFIERS: SOIL-REINFORCEMENT INTERACTION, REINFORCED EARTH
 CARD ALERT: 483, 931

937286 ID NO. E1790537286
EARTHQUAKE RESISTANT REINFORCED EARTH WALLS.

Richardson, Gregory N.
 NC State Univ, Raleigh
 Symp on Earth Reinf. Proc of a Symp at the ASCE Annu Conv, Pittsburgh, Pa, Apr 27 1978 Publ by ASCE, New York, N.Y., 1979 p 664-68

The paper proposes a simple design procedure for evaluating dynamic force magnitudes in each reinforcing strip in such structures. This new design procedure incorporates data from earlier tests by other researchers and from subsequent laboratory shake table tests performed to measure the influence of the reinforcement distribution on the dynamic response of reinforced earth walls. The seismic design procedure is postulated based on the observed influence of reinforcement distribution and correlation with data from the earlier full-scale test wall. The proposed seismic design procedure also incorporates statistical response spectra to model earthquake ground motions for seismic magnitudes ranging from M_L 0 to M_L 5. Sufficient design aids are provided such that a complete seismic design can be accomplished using hand calculations. The proposed seismic design procedure is also applicable if an actual design acceleration time-history is available for the site. 11 refs

DESCRIPTORS: (*RETAINING WALLS, *Design), EARTHQUAKE RESISTANCE, (SOILS, Stabilization), SOIL MECHANICS, IDENTIFIERS: REINFORCED EARTH WALLS
 CARD ALERT 405, 483, 484

936342 ID NO - E1790336342
SIMULATION OF RANDOM PACKING OF SPHERES.

Jodrey, W. Steven; Torv, Elmer M.

Mt Allison Univ, Sackville, NB

Simulation v 32 n 1 Jan 1979 p 1-12 CODEN: SIMUA2

ISSN 0037-5497

PACKS simulates the very slow settling of rigid spheres (as in sedimentation) from a dilute suspension into a randomly packed bed. Spheres are introduced one at a time in a potential field and fall or roll until they occupy one of the available sites. The position of an incoming sphere is calculated at each of the significant events in its history. Thus, probabilities for each site are assigned on a realistic basis. Packings of 100,000 or more spheres are feasible. The simulation has potential applications in crystallography, soil engineering, biology, nuclear engineering, and petroleum engineering. 31 refs.

DESCRIPTORS: (*PACKING, *Computer Simulation), SUSPENSIONS, SEDIMENTATION, (PROBABILITY, Random Processes), CRYSTALLOGRAPHY, SOIL MECHANICS.

IDENTIFIERS: SPHERES, PACKED BEDS

CARD ALERT: 619, 723, 801, 922, 931

928723 ID NO - E1790428723

ESTIMATE OF SOIL COMPRESSIBILITY FROM STANDARD PENETRATION TEST.

El-Moursi, Houssein H.; Krizek, Raymond J.; Corotis, Ross B.

Soil Test Serv of Iowa Inc, Cedar Rapids

Geotech Eng v 9 n 1 Jun 1978 p 1-12 CODEN: GIEGB2

A probabilistic model is developed to relate the compressibility of a soil deposit to blow counts obtained from standard penetration tests. The established relation is based on a variable proportionality coefficient, the value of which depends on the nature of the soil. The variations in the blow count and the proportionality coefficient are examined through the calculated statistical parameters, and it is found that these variations can be explained in terms of a normal probability distribution. The method of derived distributions is then used to develop a probabilistic model for predicting the total settlement in a compressible clay layer in terms of uncertain standard penetration test results and loads. The compression ratio is found to be well described by a normal distribution, and the total settlement is likewise well approximated by a lognormal distribution.

DESCRIPTORS: (*SOIL MECHANICS, *Mathematical Models), STATISTICAL METHODS, (FOUNDATIONS, Settlement).

CARD ALERT 483, 931, 922, 405

928722 ID NO - E1790428722

VARIABILITY OF SOIL STRENGTH AND ITS CONSEQUENCES ON THE RELIABILITY OF STRUCTURES ON GROUND.

Athanasios Grivas, D

Rensselaer Polytech Inst, Troy, NY

Dev in Theor and Appl Mech v 9; Proc of the Southeast Conf

on Theor and Appl Mech (SFCTAM), 9th, Nashville, Tenn, May 4-5 1978. Sponsored by Vanderbilt Univ, Nashville, Tenn, 1978 p 487-496

A probabilistic model is presented for the determination of the reliability of structures founded on ground. The bearing capacity of the foundation material is assumed to be a random variable following a general beta distribution. The same model is also used to describe the variation of the applied load. The statistical values of both bearing capacity and applied load are found through an application of the \$left double quotes\$ error propagation method \$right double quotes\$.

An attempt is made to develop relationship between the conventional factor of safety and the probability of failure. The results are illustrated in a case study. 9 refs

DESCRIPTORS: *SOIL MECHANICS, (FOUNDATIONS, Bearing Capacity),

CARD ALERT: 405, 483, 493

928208 ID NO - E1790428208

STATISTICAL REPRESENTATION OF JOINT ROUGHNESS.

Wu, Tien H.; Ali, Elifatih M.

Ohio State Univ, Columbus

Int J Rock Mech Min Sci Geomech Abstr v 15 n 5 Oct 1978 p 259-262 CODEN: IRMG8G

Quantitative measures of joint roughness are used to compare different surface characteristics. After considering the roughness profile as a signal in the time space, the techniques of time series are employed to describe the signal characteristics. 6 refs

DESCRIPTORS: (*ROCK MECHANICS, *Testing), (GEOLOGY, Engineering),

CARD ALERT 483, 502, 481

920329 ID NO. E1790320329
RESILIENT RESPONSE OF TWO FROZEN AND THAWED SOILS
 Chamberlain, Edwin J.; Cole, David M.; Johnson, Thaddeus C.
 US Army Cold Res & Eng Lab, Hanover, NH
 ASCE J Geotech Eng Div v 105 n 2 Feb 1979 p 257-271
 CODEN AJGEB6

Values of resilient modulus and Poisson's ratio were determined for silt and clay subgrade materials subjected to seasonal freezing and thawing. A new technique employing non-contacting variable impedance transducers was employed to obtain radial strain data for calculation of Poisson's ratio. The data were analyzed using multiple linear regression and analysis of variance techniques to obtain empirical relationships between the resilient moduli and Poisson's ratio parameters and stress and material property variables. Resilient modulus data ranged from over 6,000,000 psi for the frozen condition to less than 600 psi for the thawed condition. Poisson's ratio ranged from 0.07 to 0.61, the majority of the values falling between 0.30 and 0.50. 13 refs.

DESCRIPTORS: (*SOILS, *FROZEN), (ROADS AND STREETS, Frost Effects), PAVEMENTS, SOIL MECHANICS, STATISTICAL METHODS, IDENTIFIERS: THAWING, TRIAXIAL TESTS
 CARD ALERT 406, 483, 922, 931

920303 ID NO. E1790320303
RELIABILITY ANALYSIS OF SLOPES: FREQUENCY-DOMAIN METHOD
 Veneziano, Daniele; Antoniano, Jaime
 MIT, Cambridge, Mass
 ASCE J Geotech Eng Div v 105 n 2 Feb 1979 p 165-182
 CODEN AJGEB6

In previous works, slope reliability against three-dimensional failures has been approached by space-domain methods. System reliability becomes tractable if second-moment uncertainty on shear resistance is characterized and analyzed in the frequency domain (i.e., in terms of the spectral density function and not of the covariance function). The main features of the frequency method proposed here are: (1) Modes of failure are unrestricted within the class of plastic shear mechanisms; (2) a shear resistance is treated as a random field in three dimensions; the field must be homogeneous in the longitudinal direction (along the slope) but may be nonhomogeneous in transversal sections; (3) the probability distribution of modal resistance can be either normal or lognormal. Application to cylindrical failures in vertical cuts confirms that reliability is sensitive to uncertainty on the mean of the shear resistance field as well as to the scale parameters of the shear resistance correlation function. High sensitivity is found also with respect to the distribution, normal or lognormal, of modal resistance. Cut length is another important parameter. 17 refs.
 DESCRIPTORS: (*SOIL MECHANICS, *Stability), (STRUCTURAL DESIGN, Safety Factor), MATHEMATICAL MODELS, PROBABILITY, IDENTIFIERS: SLOPE STABILITY
 CARD ALERT 408, 493, 921, 922

920300 ID NO. E1790320300
PROBABILISTIC EVALUATION OF LIQUEFACTION POTENTIAL
 Haldar, Achintya; Tang, Wilson H.
 Ill Inst of Technol, Chicago
 ASCE J Geotech Eng Div v 105 n 2 Feb 1979 p 145-163
 CODEN AJGEB6

A procedure for predicting probability of liquefaction is used to estimate the probability of liquefaction for a given design earthquake magnitude and acceleration or when the earthquake loading is considered as random. Reasonable comparison is obtained between the probabilities computed and the field observations of liquefaction occurrences. Uncertainty analysis of the Seed and Idriss simplified method reveals that the uncertainties in the load parameters exceed those in the resistance parameters. Thus, the seismic activity of the region should be given serious consideration, as well as the attenuation characteristics. When the maximum acceleration and earthquake magnitude are specified, the probability of liquefaction will be governed by the uncertainties in the relative density and cyclic shear strength parameters. As an alternative tool of analysis the probabilistic model could complement the deterministic procedures by providing information on the relative risk of liquefaction between design alternatives.

DESCRIPTORS: *SOIL MECHANICS, (SOILS, Earthquake Resistance) STATISTICAL METHODS, PROBABILITY, EARTHQUAKES, IDENTIFIERS: LIQUEFACTION
 CARD ALERT 483, 484, 922, 931

912295 ID NO. - E1790212295
QUANTITATIVE MODEL OF DILATANCY IN DRY ROCK AND ITS APPLICATION TO WESTERLY GRANITE.

Holcomb, David J
 Univ of Colo, Boulder
 J Geophys Res v 83 n B10 Oct 10 1978 p 4941 4950 CODEN JGRHA2

A general model of dilatancy was developed based on the behavior of individual microcracks. Macroscopic effects were described by combining the effects of individual cracks using a statistical approach. The model was developed using a distribution function for crack size, crack strength, and local stress. Hysteresis in volumetric strain and stress-strain data for partial unloading and reloading and general loading paths can be described. The model is best suited to describing rock which has been subjected to a number of loading cycles sufficient to remove the residual volumetric strain that is present in the initial cycles. Some aspects of the crack behavior that were necessary to explain the data are incompatible with the usual sliding crack model of dilatancy. Combined with the lack of observable shear cracks, this casts serious doubts on the validity of the sliding crack model. 16 refs.

DESCRIPTORS: *ROCK MECHANICS.
 CARD ALERT 483, 502

911273 ID NO. - E1790211273
PROBABILISTIC CONSIDERATIONS IN THE FOUNDATION ENGINEERING FOR OFFSHORE STRUCTURES.

Høeg, K.; Tang, W. H.
 Norw Geotech Inst, Oslo
 Nor Geotek Inst Publ n 120 1978 29 p CODEN NGIPRZ
 The type of offshore structure that may safely and economically be installed at a given site depends to a large extent on the local soil conditions. Foundation soil behavior has to be analyzed for large cyclic loads superimposed on the static ones. Experimental results from soil elements subjected to cyclic loads in the laboratory show substantial scatter, which gives rise to large uncertainties in the analytical predictions of field performance. A systematic evaluation of the reliability of present practice and available engineering analyses starts by comparing before the event predictions to field measurements. The paper attempts to give an overview of the geotechnical engineering performed for offshore gravity structures and to point out to what extent theories of probability and statistics so far have been used. Specific cases are considered for probabilistic analyses of the platform installation phase and foundation stability during storm loading. 16 refs.
 DESCRIPTORS: (*OFFSHORE STRUCTURES. *foundations).
 PROBABILITY. SOIL MECHANICS.
 CARD ALERT 674, 483, 922

STATISTICAL VARIATION IN STRESS-VOLUMETRIC STRAIN BEHAVIOR OF WESTERLY GRANITE.

Costantino, Marc S.
 Univ of Calif, Lawrence Livermore Lab
 Int J Rock Mech Min Sci Geomech Abstr v 15 n 3 Jun 1978 p 105-111 CODEN IJRMGG

A lower bound was determined for the experimental uncertainty caused by the double quoted natural rock variability. Eight double quoted measurements of stress-volume strain. Ten similar, hydrostatic and triaxial compression experiments were performed on the granite. The uncertainty owing to rock variability was estimated by intermingling the mean and standard deviations of the volume strains at several stresses. Standard deviations of the order of 10-20% of the mean volume strains were found. The standard deviation of the mean for the volume strains, however, ranges from 3 to 9%. Relative to many other rocks, Westerly granite is very homogeneous, isotropic and otherwise well behaved. Therefore, these estimates of scatter that, for the most part, result from rock variability should be near a lower bound, for strain properties of other less well-behaved rocks. Deviations from mean values are expected to be larger. For evaluation of a model or theory that purports to describe a mechanical property, average values obtained from a large number of similar experiments are required. While it is reasonable to suppose that results from a single experiment will be close to the average value for the group, caution should be used in attempting to force models to fit, in discarding theories that do not fit, or in drawing conclusions from the results of a single experiment. 7 refs.

DESCRIPTORS: (*ROCK. *Testing). (MATERIALS TESTING. Plasticity). ROCK MECHANICS.
 IDENTIFIERS: STRESS-VOLUMETRIC STRAIN BEHAVIOR
 CARD ALERT: 483, 502, 505, 421, 422

44533 ID NO - E178014533
SEISMIC SOIL-CONTAINMENT INTERACTION: PIPE SAFETY
 FORTIS, Michael N.; Corbett, C. Allen
 MTL, Canbden, Mass
 ASCE J Eng Mech Div V 104 n 6 Dec 1978 p 1753-1770 CODEN
 JMCEA3

The integrity of pipes penetrating the containment wall of a nuclear power plant may be threatened by seismic motions of the containment vessel. Within the context of an integrated accident and seismic containment reliability study, a methodology is presented for the determination of the probability of failure of a single pipe and of a system of pipes, as a function of the causative ground acceleration. Extreme rocking displacements of the containment under earthquake intensities well beyond the design level are estimated by means of a simple model that takes into account the possibility for soil-base separation and the multidirectionality of the ground motion. The final reliability estimates reflect a large number of uncertainties, most of which are of statistical nature, i.e., stemming from the limited information about soil properties, details of the seismic motion, and resistance of the pipes. The correlation between failures of apparently redundant pipes that is introduced by the common dependence on system-wide uncertainties is illustrated. 17 refs.

DESCRIPTORS (*PIPELINES, *Earthquake Resistance), (FOUNDATIONS, Soil Structure Interaction), SOIL MECHANICS, (STRUCTURAL DESIGN, Safety Factor), (MATHEMATICAL MODELS, CONTAINMENT WALLS).

CARD ALERT 405, 408, 483, 484, 619, 921

894348 ID NO - E1781294348
SITE DEPENDENT EARTHQUAKE MOTIONS
 Rowstad, Karl M.; Bruce, John; Hutchinson, James R
 Univ of Calif, Davis
 ASCE J Geotech Eng Div V 104 n 11 Nov 1978 p 1390-1409
 CODEN JGCEP6

A statistical method for modeling time varying earthquake induced acceleration levels which will produce smooth response spectrums of the desired shape and amplitude levels is developed. Specific records are derived to simulate a mean spectrum developed from historically recorded rock motions and also for AEC regulatory guide spectrum. The synthetic rock motion is then used as the input motion to a number of site conditions simulating stiff, deep cohesionless and soft to medium clay and sand sites using the computer program SHAKE. The results are compared to mean spectra for similar sites derived from historically recorded motions and shown to provide reasonable engineering estimates of site motions. 14 refs.

DESCRIPTORS (*STRUCTURAL DESIGN, *Earthquake Resistance), SOIL MECHANICS, STRUCTURAL ANALYSIS, MATHEMATICAL MODELS, IDENTIFIERS, GROUND MOTION, EARTHQUAKE RESISTANT STRUCTURES

CARD ALERT 408, 483, 484, 921, 931

867004 ID NO - E1780860004
USE OF NUMERICAL AND STATISTICAL METHODS TO DETERMINE THE INITIAL STATE OF STRESS IN ROCK

Pagev, S. N
 Inst of Min Sci Branch of the Acad of Sci of the USSR, Moscow, USSR

Sov Min Sci V 13 n 3 May Jun 1977 p 307-310 CODEN SMNSAT
 An approach to the determination of the initial state of stress in rock in the neighborhood of a measurement bore-hole by the perturbation method is proposed in which construction of a scheme of calculation for any particular variant essentially reduces to numerical solution of the appropriate direct problems of the theory of elasticity. 3 refs.
 DESCRIPTORS (*ROCK MECHANICS, *Stresses), (STRESSES, Measurements), (MATHEMATICAL TECHNIQUES, Numerical Methods, STATISTICAL METHODS).

CARD ALERT 483, 502, 421, 921, 922

853571 ID NO - E1780753571
CONSOLIDATION SEM DASH PROBABILISTIC APPROACH

Athanasou-Grivas, Dimitri; Harr, Milton E.
 Rensselaer Polytech Inst, Troy, NY
 ASCE J Eng Mech Div V 104 n 3 Jun 1978 p 681-690 CODEN
 JMCEA3

In the present work one-dimensional consolidation is treated as a phenomenon of diffusion and the governing physical equation is derived using probabilistic considerations. The similarity between diffusion of solids in a field of water and that of a substance dispersed in a liquid is exploited to determine the analytical expression of the coefficient of diffusion. Differences between laboratory and field conditions are considered for the prediction of the expected rates of dissipation of pore water pressure. Finally, a simple scaling procedure is presented, of time to space increments, to provide recurrence formulas. 8 refs.
 DESCRIPTORS (*SOILS, *Consolidation), MATHEMATICAL MODELS, PROBABILITY, SOIL MECHANICS, STATISTICAL METHODS, IDENTIFIERS, PROBABILITY THEORY, SCALE EFFECT

CARD ALERT 483, 921, 922, 931

853074 ID NO - E1780753074
PROBABILITY ANALYSIS OF ROCK SLOPES AND ITS APPLICATION TO A PIT SLOPE DESIGN.

Kenecott Copper Corp., Met Min Div-Eng Cent., Salt Lake, City, Utah.
 Proc Symp Rock Mech 18th: Keystone, Colo., Jun 22-24 1977.
 Publ by Colo Sch of Mines Press, Golden, 1977 v 1 p 505.
 1-505. 6 CODEN: PSRMA6

A statistical method of slope analysis is developed in this paper, which will determine the probability of a slope failure. This method is based on a probability analysis of rock sample strengths and involves the back-calculation method to derive the necessary strength values. A case study is given for slope design in a copper mine. It illustrates how the progressive probability areas of various sample sizes can be drawn and when the actual convergence limit of the areas is reached, and the true probability area. The sensitivity of pore pressure on the probability of failure for the slope is tested to analyze its impact on stability. 5 refs.

DESCRIPTORS: *ROCK MECHANICS, COPPER MINES AND MINING, IDENTIFIERS, PIT SLOPE DESIGN
 CARD ALERT: 483, 502, 504

853072 ID NO - E1780753072
STATISTICAL DESCRIPTION OF ROCK PROPERTIES AND SAMPLING.

Baecher, G. B.; Lanney, N. A.; Einstein, H. H.
 MIT, Cambridge, Mass.
 Proc Symp Rock Mech 18th: Keystone, Colo., Jun 22-24 1977.
 Publ by Colo Sch of Mines Press, Golden, 1977 v 1 p 501-501. 8 CODEN: PSRMA6

Statistical description of rock mass properties is essential for two reasons. (1) Analyses in rock engineering require statistical descriptions to take the distributive character of properties into account, and (2) Field sampling requires statistical descriptions to develop sampling plans and to draw inferences from data. For both purposes, it is essential to know appropriate distributions of rock mass properties. Based on the evaluation of a large number of joint data and taking previous work into account, it was determined that the best fitting distribution for joint strength double quotes length is lognormal and for joint spacing is exponential. Based on these conclusions, a model was developed for inferring joint set parameters and for estimating the intensity of jointing (joint surface area per volume) from outcrop data. 15 refs.

DESCRIPTORS: *ROCK MECHANICS, (GEOPHYSICS, Rock Properties), STATISTICAL METHODS
 CARD ALERT: 487, 502, 481, 322

853055 ID NO - E1780753055
POTENTIAL OF SPECIFIED GROUND VIBRATIONS FROM BLASTING.

Lutton, Richard J.
 US Army Eng Waterw Exp S'n, Soils & Pavements Lab, Vicksburg

Proc Symp Rock Mech 18th: Keystone, Colo., Jun 22-24 1977.
 Publ by Colo Sch of Mines Press, Golden, 1977 v 1 p 302.
 1-302. 7 CODEN: PSRMA6

The distribution of peak particle velocity (V_{max}) from construction blasting appears to be approximately log normal so that the probabilities of exceeding specified levels should be approximately predictable. Separate models of V_{max} distribution are presented for presplit (confined) and delayed shots. The preferred scaling factor operating on charge weight per delay is n equals 1/3. 7 refs.

DESCRIPTORS: (*ROCK, *Blasting), VIBRATIONS, ROCK MECHANICS, CARD ALERT: 483, 405, 502, 931

850077 ID NO - E1780750077
BESTIMMUNG DER ROHRDICHTE NICHTBINDIGER LOCKERGESTEINE BEI GENEIGTER GELÄNDEOBERFLÄCHE. SIEB BRACKETS DETERMINATION OF THE Bulk Density of Cohesionless Soils in Inclined Ground Surface Sieb Brackets.

Mu, Elke; Reinhardt, Klaus
 Bauakad der DDR, Leipzig, E Ger
 Bauplanung Bautech v 32 n 1 Jan 1978 p 11-12 CODEN: BABAAI

The statistical evaluation of the results of investigation on soil structure interaction showed that the method used for testing made it possible to obtain acceptable qualitative and quantitative classification of different compression and tamping technologies. 12 refs. In German.
 DESCRIPTORS: (*FOUNDATIONS, *Soil Structure Interaction), SOIL MECHANICS, (SOILS, Testing), CARD ALERT: 405, 483, 931

845637 ID NO: E1780615637
MEASUREMENT AND PREDICTION OF VIBRATIONS GENERATED BY DROP
HAMMER PILING IN BANGKOK SUBSOILS

Breiner, R. Peter; Viranvut, Suwit
Asian Inst of Technol., Bangkok, Thailand
Southeast Asian Conf on Soil Eng., 5th, Proc., Bangkok,
Thailand, Jul 2-4 1977 Publ by Asian Inst of Technol., Bangkok,
Thailand, 1977 p 105-119

A large number of vibration measurements on the ground surface and on an adjacent building were performed in connection with pile driving activities on a site north of Bangkok, Thailand. Vibration intensity was expressed in terms of peak particle velocity. A statistical comparison with previously collected data from other sites in the Bangkok area revealed that vibrations generated by driving a pile into one of the bearing strata commonly used for founding piles in this region, i.e., stiff clay or the underlying sand, are not of significantly different magnitude. A previously recommended upper bound for vibrations to be expected could be confirmed. A multiple correlation with penetration data obtained from Dutch cone tests at the site and pile driving records was also attempted but the only variable giving a significant contribution was the cone resistance. Refs.
DESCRIPTORS (*SOILS, *Vibrations), (PILES, Driving), SOIL MECHANICS.
CARD ALERT 483, 931

837689 ID NO: E1780537689
SEISMIC GROUND MOTION PARAMETER RELATIONS

McGuire, Robin K
US Geol Surv, Denver, Colo
ASCE J Geotech Eng Div V 104 n 4 Apr 1978 p 481-490
CODEN AJGTER6

The relationships among spectral velocity for 0.5 Hz and 1.0 Hz frequencies, peak ground acceleration, and peak ground velocity of earthquake-induced ground motion are investigated using the horizontal components of motion from 70 California strong-motion records and accounting for event size, source-to-site distance, and geologic conditions at the recording site. These strong-motion records indicate that the estimation of intermediate-frequency spectral response using ground acceleration and typical design spectra is unconservative for a large, distant event (magnitude 8 plus 120-km epicentral distance) by a factor of about 2 to 6, depending on the site geology. Ground velocity can be used to estimate intermediate frequency spectral response; however, expected spectral response will exceed these estimates during the motion from large, distant events by a factor of about 1.4 to 2.5. Because of the large variabilities associated with strong motion data, these results are tentative.
DESCRIPTORS *SOIL MECHANICS, (BUILDINGS, Earthquake Resistance), EARTHQUAKES, STATISTICAL METHODS.
IDENTIFIERS SEISMIC GROUND MOTION
CARD ALERT 402, 483, 484, 922, 931

81812 ID NO: E1780533812
CONTACT SHEAR DISTRIBUTION UNDER MACHINE FOUNDATION

Sankaran, K. S.; Subrahmanyam, M. S.; Rama Sastri, K.
Indian Inst of Technol., Madras
Int Symp on Soil Structure Interaction, Univ of Roorkee, India,
Jan 3-7 1977 Publ by Abhay Rastogi for Sarita Prakashan,
Meerut, India, 1977 p 405-412

This paper deals with analytical solutions, their numerical evaluations and corresponding design curves for annular ring uniform contact shear distribution for predicting resonant frequency and peak amplitude of footings resting on soil surface and subjected to horizontal vibrations. The analysis is based on elastic half-space theory. The analytical solutions compare well with field tests and suggest the probability of prediction of machine foundation response from a single field vibration test.
DESCRIPTORS (*FOUNDATIONS, *Soil Structure Interaction), (MACHINERY, Foundations), SOIL MECHANICS, VIBRATIONS.
CARD ALERT 405, 483, 931

829238 ID NO: E1780429238
FINITE ELEMENT RANDOM VIBRATION METHOD FOR SOIL-STRUCTURE INTERACTION ANALYSIS

Romo Organista, M. P.; Lysmer, J.; Seed, H. B.
Univ of Calif, Berkeley
Trans of the Int Conf on Struct Mech in React Technol., 4th, (Kla), Seism Response Anal of Nucl Power Plant Syst, San Francisco, Calif, Aug 15-19 1977 Publ by Comm of the Eur Communities, Luxemb, 1977 Pap K 2/3, 12 p

An analytical method of earthquake motions is presented which retains the randomness in both the definition of the design motion and the computed response. The seismic environment is defined directly in terms of the given design response spectrum. By using extreme value theory a new procedure has been developed for converting the design response spectrum into a design power spectrum. Knowing the design power spectrum, the resulting output power spectra and their statistical distribution can be computed by a response analysis of the soil-structure system in the frequency domain, most conveniently done by the finite element method. These spectra can be used to determine statistical information about the response such as maximum accelerations, stresses, bending moments, etc., all with confidence limits. 15 refs.
DESCRIPTORS *SOIL MECHANICS, EARTHQUAKES, (PROBABILITY, Random Processes), COMPUTER PROGRAMMING, (MATHEMATICAL TECHNIQUES, Finite Element Method), VIBRATIONS.
CARD ALERT 483, 484, 723, 921, 931

821421 ID NO - E1780427421
CRITERIA FOR THE GENERATION OF SPECTRA CONSISTENT TIME HISTORIES.

Lin, C. W.
 Westinghouse Electr Corp, Pittsburgh, Pa.
 Trans of the Int Conf on Struct Mech in React Technol, 4th, v 1(KA) Seism Response Anal of Nucl Power Plant Syst, San Francisco, Calif, Aug 15 19 1977 Publ by Commn of the Eur Communities, Luxemb, 1977 pap K 1/11, 8 p.
 The response spectrum technique has been widely adopted for the linear type of seismic analysis of nuclear power plants. However, the time history approach is viable where the response has to be computed as a function of time. Given a design response spectrum, a nearly unlimited number of synthesized time history motions can be constructed. Time histories having frequency content higher than indicated by real earthquake records may have adverse influence on the system response. Other time histories may have unnecessarily long duration, which makes a large and detailed analytical model uneconomical. 15 refs.
 DESCRIPTORS: (*NUCLEAR REACTORS, *Earthquake Effects, SOIL MECHANICS, STATISTICAL METHODS, VIBRATIONS.
 CARD ALERT 483, 484, 621, 922, 931

821436 ID NO - E1780321436
APPLICATION OF RISK ANALYSIS TO THE PREDICTION OF SLOPE INSTABILITY.

Young, R. N.; Alonso, E.; Tabba, M. M.; Framingham, P. B.
 McGill Univ, Montreal, Que.
 Can Geotech J v 14 n 4 Nov 1977 p 540-553 CODEN CGJGJAH
 The problem of the prediction of stability or instability of natural clay slopes is examined in view of the random intrinsic nature of both soil properties and external actions. The probabilistic method of analysis appears to be a useful tool, which not only could account for these random properties but also could consider uncertainties derived from incomplete knowledge of pertinent model parameters and conditions of stability. Using the familiar method of slices, the different sources of error have been incorporated into a first order probability analysis of the simplified Bishop model in order to arrive at quantitative information concerning the probability of failure. Field and laboratory data from an instrumented test valley slope in the Ottawa region have been considered to arrive at an instability risk prediction of the test slope. The mean functions of the strength parameters have been made explicitly dependent on a number of statistical parameters to emphasize dependence on available data. Refs.
 DESCRIPTORS: (*SOIL MECHANICS, *Stability, PROBABILITY, CLAY, IDENTIFIERS, SLOPE STABILITY, CLAY SLOPES, RISK ANALYSIS
 CARD ALERT 483, 931, 922

821436 ID NO - E1780321436
STATISTICAL FORECASTING OF COMPRESSIBILITY OF PEATY GROUND.

Komuro, Keiji; Ohira, Yoshinori
 Natl Def Acad, Yokosuka, Jpn.
 Can Geotech J v 14 n 4 Nov 1977 p 562-570 CODEN CGJGJAH
 Statistical techniques are used to forecast the compressibility of peaty ground. Based on data from more than 100 consolidation tests on undisturbed samples of peat and underlying clay, various regression equations are developed to estimate the compression index in terms of more easily determined soil index properties. It is found that the compression index can be reasonably well approximated by the use of a simple linear regression model involving the natural water content and the natural void ratio. These regression equations are then compared with those that have been reported by other investigators. These regression equations may permit a preliminary estimation of the settlement of peaty ground.
 Refs.
 DESCRIPTORS: (*SOIL MECHANICS, *Consolidation, PEAT, Mechanical Properties, STATISTICAL METHODS.
 CARD ALERT 483, 931, 922

813769 ID NO - E1780213769
PROBABILITY MODELS OF UNDRAINED STRENGTH OF MARINE CLAY LAYER.

Matsuo, Minoru; Asakura, Akira
 Nagoya Univ, Jpn.
 Soils Found v 17 n 3 Sep 1977 p 53-68 CODEN SOIFBT
 A probability model of the undrained strength of saturated clay which can correctly represent the heterogeneity and is indispensable for the reliability-based design of a soft ground is presented. The variability of undrained strength is analyzed quantitatively from two points of view. One aspect is concerned with the variability due to sample disturbance which is inevitable at sampling and testing of soils. The other is the inherent heterogeneity of a natural ground. The ratio of strength of a disturbed sample to that of a perfect one is formulated by a probabilistic function of the disturbance ratio. The inherent variability of undrained strength is analyzed based on the perturbation of consolidation pressure due to heterogeneity of a ground. The final probability model of measured undrained strength is obtained by convolution of those two kinds of variability. 20 refs.
 DESCRIPTORS: (*SOILS, *Consolidation, CLAY, MATHEMATICAL MODELS, PROBABILITY, STATISTICAL METHODS, SOIL MECHANICS, IDENTIFIERS, SATURATED CLAY, SOFT GROUND, HETEROGENEITY, CLAY STRENGTH
 CARD ALERT 483, 921, 922, 931

805785 ID NO - E1771293547
UNDERGROUND PIPE DAMAGES AND GROUND CHARACTERISTICS
 Shimozaki, Masaharu; Kawakami, Hideto
 Columbia Univ., New York, NY
 Tech. Comm. on Lifeline Earthquake Eng. Spec. Conf. Proc., Conf. State of Knowl. of Lifeline Earthquake Eng., Univ. of Calif., Los Angeles, Aug 30-31, 1977 Publ. by ASCE, New York, NY, 1977 p 293-307

A method is proposed under the quasi-static demonstration of field conditions to evaluate the elastic surface strains arising from spatial variability of the soil property (ground predominant frequency) of a surface layer subjected to shear waves, incident vertically from below through a semi-infinite firm ground. The variability is described in terms of a random function of the space variable characterized by mean value, variance and correlation distance. Applying the method, the strains are evaluated for the metropolitan Tokyo area on the basis of the local soil conditions, and a reasonable correlation has been established between such strains and the ground statistics collected on the underground water supply pipelines under the 1923 Kanto Earthquake. 5 refs.

DESCRIPTORS: (1) WATER PIPELINES, (2) Earthquake Resistance, SOIL MECHANICS, MECHANICAL WAVES, (3) PIPELINES, ANALYSIS, MATHEMATICAL MODELS.
 IDENTIFIERS: UNDERGROUND PIPES, SHEAR WAVES
 (CARD ALERT 445, 483, 484, 519, 921, 931)

805786 ID NO - E1771293548
STABILITY ANALYSIS OF BANKS FOR ROADS BY STATISTICAL METHODS
 Nambu, Mitsuhiro; Karube, Daizo; Asano, Masayuki
 Oyo Corp., Osaka, Jpn
 Trans. Jpn Soc. Civ. Engrs. v. 7, Nov. 1976, p. 126-129. CODEN DCRD4V

A statistical analysis is presented of the data of bank slopes for roads, and consideration is given to the analysis of the present condition of bank slopes and the reasonability and improvement of the conventional design standards. Simultaneously, for the purpose of forecasting future disasters and estimating their scale, investigation is made of the correlation of the volume of falling soil with rainfall and value obtained by quantification analysis.
 DESCRIPTORS: (1) ROADS AND STREETS, (2) Embankments, SOIL MECHANICS, STATISTICAL METHODS, EMBANKMENTS.
 IDENTIFIERS: STABILITY ANALYSIS
 (CARD ALERT 405, 446, 483, 922, 931)

791548 ID NO - E1771293548
PROBABILISTIC MODELING OF SOIL PROFILES
 Vannarcu, Frank H.
 MIT, Cambridge, Mass.
 ASCE J. Geotech. Engrg. (in press) v. 103 n. 11 Nov. 1977 p. 1227-1246
 CODEN: JGGEPE

New concepts and methods for modeling the natural variability of soil properties are presented and illustrated by the proposed technique of modeling the statistical character of soil profiles. A dual function (1) it provides a format for quantifying the information gathered during site investigation and testing, about the subsurface conditions at a site; and (2) it provides the basis for predicting performance and for quantifying the reliability of performance estimates. Probabilistic soil profiles are characterized, first, by best estimates of layer depths and of pertinent engineering properties; and secondly, by the coefficient of variation and the correlation scales for the profile parameters of interest. Methodology is developed for dealing with problems that can be formulated in terms of extremes of realizations of soil properties. The problems of limit equilibrium slope stability and differential settlement investigation fall into this category. 18 refs.
 DESCRIPTORS: (1) SOILS, (2) Testing, SOIL MECHANICS, MATHEMATICAL MODELS, PROBABILITY.
 IDENTIFIERS: PROBABILISTIC MODELING, GEOTECHNICAL ENGINEERING, SOIL PROPERTIES
 (CARD ALERT 483, 921, 922, 931)

793547 ID NO - E1771293547
SPT AND RELATIVE DENSITY IN COARSE SANDS
 Macoson, William F. III; Bingham, Wayne A.
 Soils and Pavements Lab., US Army Engr. Waterw. Exp. Stn., Jacksonburg, Miss.
 ASCE J. Geotech. Engrg. Div. v. 103 n. 11 Nov. 1977, p. 1295-1309
 CODEN: JGGEPE

The Standard Penetration Test (SPT) is critically examined with respect to its ability to estimate relative density in situ. SPT's were performed using field drilling equipment at three overburden pressures on 4 ft (1.22-m) diam by 6-ft (1.83-m) high test specimens constructed using Platte River and Standard Concrete sands at three relative densities. The results are presented as a family of curves correlating relative density with SPT N values for the three testing pressures. This research was an extension of a previous SPT test series on hard Bedford Model and Ottawa sands. The results of testing the four sands were compared and a statistical analysis produced an empirical equation relating relative density to effective overburden pressure, N value, and coefficient of uniformity. Comparisons are also made between this work and the previous work of Gibbs and Holtz at the Bureau of Reclamation and Barzani at the University of Illinois. 16 refs.
 DESCRIPTORS: (1) SOILS, (2) Testing, SAND AND GRAVEL, MATERIALS TESTING, SOIL MECHANICS.
 IDENTIFIERS: RELATIVE DENSITY, PENETRATION TESTS
 (CARD ALERT 421, 423, 483, 931)

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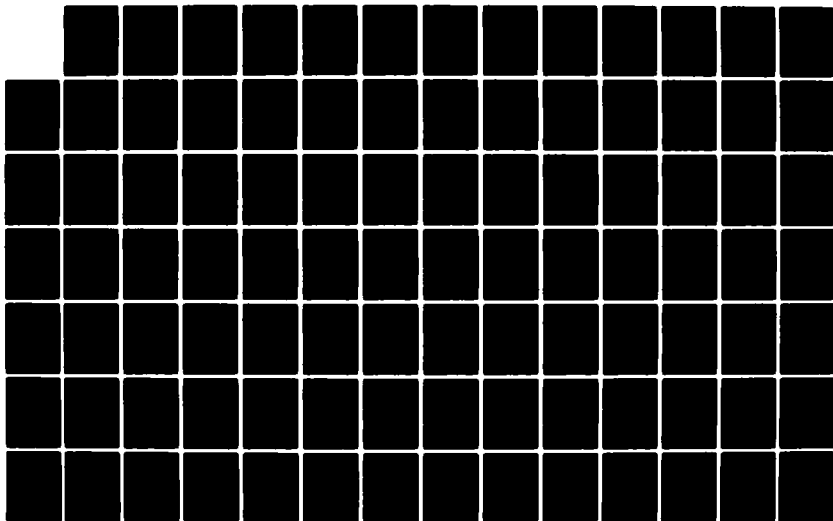
COMPENDIUM OF ABSTRACTS ON STATISTICAL APPLICATIONS IN
GEOTECHNICAL ENGIN..(U) ARMY ENGINEER WATERWAYS
EXPERIMENT STATION VICKSBURG MS GEOTE..
M E HYNES-GRIFFIN ET AL. SEP 83

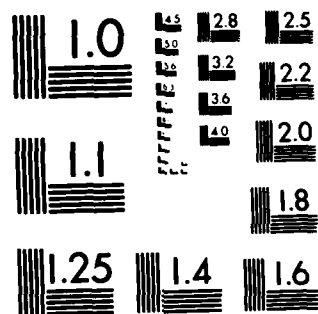
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

792999 ID NO. - E1771292999

ROCK SLOPES.

Hoek, Evert

Golden Assoc Ltd, Vancouver, BC

Rock Eng for found & Slopes, Proc of a Spec Conf, Univ of Colo, Boulder, Aug 15-18 1976 Publ by ASCE, New York, NY, 1976 v 2 p 157-17

The paper discusses the subject in terms of the choice of shear strength values for use in stability analyses; the measurement and interpretation of groundwater conditions in rock slopes; the influence of accelerations due to earthquakes and large blasts upon slope stability; and the use of factor of safety or probability of failure as a basis for slope design. 10 refs.

DESCRIPTORS: (ROCK MECHANICS, *Stability), (ROCK, Drainage) EARTHQUAKES, EXPLOSIONS.

IDENTIFIERS: SLOPE STABILITY

CARD ALERT: 483, 502, 931

785615 ID NO. - E1771185615

PROBABILISTIC SITE-DEPENDENT RESPONSE SPECTRA.

Kiremidjian, Anne S.; Shah, Hareesh C.

Stanford Univ, John A. Blume Earthquake Eng Cent, Calif

Annu ASCE Eng Mech Div Spec Conf, 2nd, Proc: Adv in Civ Eng through Eng Mech, NC State Univ, Raleigh, May 23-25 1977 Publ by ASCE, New York, NY, 1977 p 316-319

A method is presented for the evaluation of probability distributions on structural dynamic amplification factors and structural response spectra depending on the local soil conditions. From these distributions, risk-consistent structural response spectrum can be obtained for various future exposure time periods and a specified site. The method is then applied to a specific site in Southern California. Pseudo-absolute acceleration response spectra are determined for three types of soil conditions.

DESCRIPTORS: SOIL MECHANICS, (STRUCTURAL ANALYSIS, Dynamic Response), (STRUCTURAL DESIGN, Earthquake Resistance), PROBABILITY.

IDENTIFIERS: GROUND MOTION, SOIL RESPONSE SPECTRA

CARD ALERT: 483, 931, 408

780597 ID NO. - E1771180597

UNIFORM RISK ABSOLUTE ACCELERATION SPECTRA.

Anderson, John G.; Trifunac, M. D.

Univ of South Calif, Los Angeles

Annu ASCE Eng Mech Div Spec Conf, 2nd, Proc: Adv in Civ Eng through Eng Mech, NC State Univ, Raleigh, May 23-25 1977 Publ by ASCE, New York, NY, 1977 p 332-335

The seismic risk at a site can be presented as an absolute acceleration spectrum which has the property that the probability that it may be exceeded is independent of frequency. The paper calculates such a spectrum, called a uniform risk spectrum, using a scaling relationship of strong ground shaking that also considers the local site conditions

and the scatter of amplitudes about a mean attenuation curve. the shapes of uniform risk spectra adjust according to the seismicity distribution; the amplitudes are sensitive to the seismicity model used in the calculation.

DESCRIPTORS: (*EARTHQUAKES, *Analysis), PROBABILITY, SOIL MECHANICS.

IDENTIFIERS: SEISMIC RISK ASSESSMENT, GROUND ACCELERATION SPECTRA

CARD ALERT: 484, 931, 922, 483

780596 ID NO. - E1771180596

STUDY OF ATTENUATION PARAMETERS FOR CALIFORNIA.

Gurpinar, A.; Shah, H.; Savy, J.

Stanford Univ, John A. Blume Earthquake Eng Cent, Calif

Annu ASCE Eng Mech Div Spec Conf, 2nd, Proc: Adv in Civ Eng through Eng Mech, NC State Univ, Raleigh, May 23-25 1977 Publ by ASCE, New York, NY, 1977 p 324-327

The reliability of any seismic risk assessment depends essentially on the accuracy of the empirical models used to represent the deterministic and stochastic aspects of an earthquake. The attenuation law is one such relationship upon which the risk evaluation is very sensitive. While most commonly used attenuation parameters have been determined from peak ground acceleration (PGA), this study analyzes several alternatives and compares them with the PGA. Such alternatives include the peak ground velocity, the peak ground displacement, root mean square of acceleration (RMSA) and RMSA times the duration.

DESCRIPTORS: (*EARTHQUAKES, *Analysis), SOIL MECHANICS, PROBABILITY.

IDENTIFIERS: SEISMIC RISK ASSESSMENT

CARD ALERT: 484, 922, 483

768867 ID NO. - E1770968867
SETTLEMENT IN SAND 3EM DASH# METHODS OF CALCULATING AND
FACTORS AFFECTING.

Jorden, Eric E.
Maritt Test Ltd, Halifax, NS
Ground Eng v 10 n 1 Jan 1977 p 30-37 CODEN: GROEAV
This paper tabulates the methods of calculating settlement in sand and reviews the factors affecting the magnitude of this settlement. The point is made that because the methods give different answers it is necessary to always calculate settlement using several methods. The Standard Penetration Test and the static Dutch cone test on which these methods are based have been standardized, but because of a crude understanding of the relationship between penetration resistance and compressibility (the test methods are not crude as has been suggested) the various methods give different answers for the magnitude of settlement. Penetration testing is the most practical means of assessing settlement in sand and comes closer to a statistical approach to the problem than more refined and expensive methods. 35 refs.
DESCRIPTORS: (*SAND AND GRAVEL, *Consolidation), SOIL MECHANICS, SUBSIDENCE, (SOILS, Testing).
CARD ALERT: 483

767054 ID NO. - E1770967054
SELECT BERM WIDTH TO CONTAIN LOCAL FAILURES.

Martin, Dennis C.; Piteau, Douglas R.
D. R. Piteau Assoc Ltd
Eng Min J v 178 n 6 Jun 1977 p 161-164 CODEN: ENMJAK
Stability analyses for open pit slope design must consider the possibility of the failure of individual benches as well as the failure of the overall slope. In many cases, the probability of overall slope failure along major faults or weak zones may prove to be small, while the design of individual benches against excessive failure may be the controlling factor for design of the overall slope. Small failures can cause major disruptions to pit operations and can limit accessibility. A graphical method for design of individual benches to control small failures is described here.
DESCRIPTORS: (*MINES AND MINING, *Open Pit), ROCK MECHANICS, (SOILS, Stability).
CARD ALERT: 502, 504, 505, 483

765622 ID NO. - E1770965622
THEORY FOR SHEAR STRENGTH OF GRANULAR MATERIALS

Sadasivan, Sekanoor K.; Raju, Veegesha S.
Reg Eng Coll, Srinagar, Kashmir, India
ASCE J Geotech Eng Div v 103 n 8 Aug 1977 p 851-861
CODEN: AUGEB6
Based on statistical methods, a theory has been proposed for the shear strength of a random assembly of spherical cohesionless particles. The theoretical analysis gives a relationship between angle of internal friction ϕ_{ph}

$\phi_{ph}/c/v$ at constant volume, interparticle friction angle $\phi_{ph}/s/\phi$, and void ratio e . For comparison, drained triaxial compression tests have been carried out on steel spheres, uniform sands, and glass ballotini of different sizes. When $\phi_{ph}/s/\phi$ is calculated from the experimentally obtained $\phi_{ph}/s/\phi$ values it has been found that $\phi_{ph}/s/\phi$ theory could also be extended to random assemblies of irregular shaped particles as well. 23 refs.
DESCRIPTORS: *GRANULAR MATERIALS, FRICTION, SOIL MECHANICS, STATISTICAL METHODS.
IDENTIFIERS: SHEAR STRENGTH, INTERNAL FRICTION, TRIAXIAL TESTS
CARD ALERT: 483, 922, 931

760820 ID NO. - E1770860820
PROBABILISTIC ONE-DIMENSIONAL CONSOLIDATION

Freeze, R. Allan
Univ of BC, Vancouver
ASCE J Geotech Eng Div v 103 n 7 Jul 1977 p 725-742
CODEN: AUGEB6
The probabilistic analysis of one-dimensional consolidation requires as input the multivariate probability density function relating hydraulic conductivity, compressibility, and porosity. A Monte Carlo approach can be used to obtain solutions to hypothetical consolidation problems in which the soil properties are generated stochastically. Results show that the standard deviations associated with the input soil properties in heterogeneous soils can lead to large uncertainties in predicted hydraulic head values and consolidation rates. Uncertainties are increased by increasing soil heterogeneity and decreased by the presence of spatial trends. It appears that there is no simple way to define an equivalent homogeneous soil with single-valued average soil properties in heterogeneous soil systems. The practice, when utilized with the classical analytical solutions, may yield results significantly different from the most probable result for the actual stochastically-heterogeneous system. 24 refs.
DESCRIPTORS: (*SOILS, *Consolidation), STATISTICAL METHODS, SOIL MECHANICS.
IDENTIFIERS: GROUND WATER, MONTE CARLO METHOD, PERMEABILITY
CARD ALERT: 483, 922, 931

760797 ID NO. - E1770860797
STABILITY OF SLOPES IN VARIATIONAL AND PROBABILISTIC SOLUTIONS.

Bieniatowski, K.
Tech Univ. Wrocław, Pol
Eur Conf on Soil Mech and Found Eng., 6th. Proc. Vienna, Austria, Mar 22-24 1976 Sponsored by Int Soc for Soil Mech and Found Eng., London, Engl., 1976 v 1, 1 Pao 1/1-1 p 1-7
The methods by which the stability of slopes is examined are based on the analysis of state of stresses in soil medium that constitutes the slope considered. Computations are performed by approximation methods in which a definite shape of slip surface is assumed and the equilibrium of forces acting within it is analyzed. The soil solid over the slip surface is treated as a rigid body, consisting either of rigid elements or of cooperating strips. 10 refs.
DESCRIPTORS: *SOIL MECHANICS. (STRESSES. Analysis). FOUNDATIONS. PROBABILITY. MATHEMATICAL MODELS.
IDENTIFIERS: SLOPE STABILITY. APPROXIMATION METHODS
CARD ALERT: 405, 408, 483, 921, 931

759160 ID NO. - E1770859160
O STATISTICHESKOM METODE OTSEKI NERAZRUSHIMOSTI GORNAYA POROD STENOK ISKRIVLENNOI SKVAZHNITSE. Sloft brackets Statistical Method of Evaluation of the Firmness of Rocks of the Walls of a Deflected Borehole Sight Brackets.

Mitnev, G. A.; Malachukhanov, I. B.
Dagestanskii Polytech Inst, USSR
17v Vyssh Uchebn Zaved Neft Gaz n 1 1977 p 29-33 CODEN: IJUNAZ
A method of statistical approach to the evaluation of the firmness of rocks of the wall-adjacent zone of a deflected oil or gas well is set forth. It takes into account the variability of their physical and mechanical properties and rheological characteristics of the drilling fluid. The solution is based on Rzhnitsin's analytical condition of firmness and on Mises' energetic theory of strength. A calculation formula is obtained permitting determination of the maximum depth of stable condition of rocks forming the walls of a deflected well. 12 refs. In Russian.
DESCRIPTORS: (*OIL WELL DRILLING. *Deflected). ROCK MECHANICS.
CARD ALERT: 511, 502, 483

746826 ID NO. - E1770746826
REPRESENTATIVENESS OF PHYSICAL AND MECHANICAL CHARACTERISTICS OF ROCKS SURROUNDING COAL SEAMS, AND METHODS OF ESTIMATING THEM.

Saifirov, B. V.; Bruiko, Yu. P.; Dyuma, A. I.
Donbass Sci-Res Lab, Rostov-on-Don, USSR
Sov Min Sci v 12 n 3 May-Jun 1976 p 235-237 CODEN: SMNSAY
There are practically no specially selected and properly systematized data to make possible a quantitative estimate of even the main sources of error in determination of the

strength properties of the rocks surrounding a coal seam. Results of investigations made and detailed records of the mechanical strength (compressive breaking strength) of a lithologically homogeneous stratum of siltstones which extends over the whole area in the immediate roof of the k/2 seam are analyzed. The variation in the strength values of the siltstone from different boreholes, ranging from 300 to 771 kg/cm², reflects the natural geological variation of the rock within the area investigated as well as results from errors due to the different degrees of crushing of the core during drilling and imperfection of the laboratory investigation methods. In other words, the results of tests on each core sample can be regarded as the sum of three independent random variates $\Sigma \text{EM DASH}$ the natural strength of the rock at the point of sampling, Σsigma , the error due to the drilling process, ΣDELTA //d, and the error of the laboratory tests, ΣDELTA //1. By one of fundamental laws of mathematical statistics, the dispersion of the sum of independent terms is equal to the sum of their dispersions. 3 refs.

DESCRIPTORS: (*COAL MINES AND MINING. *Rock Pressure). ROCK MECHANICS. MATHEMATICAL STATISTICS.
CARD ALERT: 503, 483, 502, 922

737533 ID NO. - E1770837533
SLOPE STABILITY ANALYSIS AND DESIGN BASED ON PROBABILITY TECHNIQUES AT CASSIAR MINE.

Piteau, Douglas R.; Martin, Dennis C.
D. R. Piteau & Assoc Ltd, West Vancouver, BC
CIM Bull v 70 n 779 Mar 1977 p 139-150 CODEN: CIBUBA
This paper describes the open-pit studies relating to slope stability and design of the argillitic waste rocks which form the upper 700 feet of the 1000- to 1100-ft-high hanging-wall slope at the Cassiar Mine in British Columbia. Analyses indicated that the likelihood of deep-seated failure in terms of slope angles which are geometrically possible was low. However, wedge failures on benches, which involve either whole or parts of the benches, were found to be of principal importance with respect to stability. Slope stability analyses and related slope design were based essentially on evaluating the geometry of the potential wedge failures in terms of the probability of occurrence of unstable wedge failures which could spill over the benches. 5 refs.
DESCRIPTORS: (*ASBESTOS MINES AND MINING. *Open Pit). ROCK MECHANICS.
CARD ALERT: 505, 483, 502

735724 ID NO.: E1770535724
PROBABILISTIC ASSESSMENT OF THE STABILITY OF A CUT SLOPE.
 Peirder, M. J.
 Minist of Works & Dev, N7

NZ Eng v 31 n 10 Oct 15 1976 p 239-241 CODEN: NZENAS
 The primary objective of the paper is to illustrate the calculation procedure while keeping the computational procedure as simple as possible. This end is greatly facilitated by the adoption of a simple model for the mechanics of the slope failure and the distribution of material properties. The profile of the slope analysed is shown. The stability was considered in two stages: first, the full depth of cut was considered with a simplified profile, a simple cut with slope 61 degrees; and, secondly, the possible behavior of the steeper upper part of the slope was considered. 3 refs.

DESCRIPTORS: (*SOILS, *Testing). SOIL MECHANICS, PROBABILITY
 IDENTIFIERS: SLOPE STABILITY, PROBABILISTIC ASSESSMENT,
 SLOPE FAILURE

CARD ALERT: 483, 922, 931

735670 ID NO.: E1770535670
APPLICATION OF RISK ANALYSIS TO PREDICTION OF SLOPE INSTABILITY.

Yong, Raymond N.; Alonso, E.; Fransham, Peter B.; Tabba, M. Myassar

McGill Univ, Montreal, Que
 Can Geotech Conf, 29th, Vancouver, BC, Oct 13-16 1976
 Sponsored by Can Geotech Soc, Montreal, Que, 1976 Sess XII p 1-24

The problem of prediction of stability or instability of natural clay slopes is examined in view of the random intrinsic nature of both soil properties and external actions. The probabilistic method of analysis appears to be a useful tool which could account not only for the random properties as shown, but could also consider uncertainties derived from incomplete knowledge of pertinent model parameters and conditions of stability. 15 refs.

DESCRIPTORS: (*SOIL MECHANICS, MATHEMATICAL MODELS, CLAY, PROBABILITY,
 IDENTIFIERS: SLOPE STABILITY, RISK ANALYSIS, PROBABILISTIC METHODS

CARD ALERT: 483, 921, 922, 931

735665 ID NO.: E1770535665
SLAB AVALANCHE MEASUREMENTS.

Perla, R.
 Environ Can, Calgary, Alberta

Can Geotech Conf, 29th, Vancouver, BC, Oct 13-16 1976
 Sponsored by Can Geotech Soc, Montreal, Que, 1976 Sess VII p 1-14

From a study of 205 slab avalanches it is concluded that failure initiates where the slope is 25 degrees or steeper.

that slab failure stress is in the range 10^{-2} N/m² to 10^{-4} N/m², and that the slab failure plane is most commonly at a temperature of minus 5 degrees C or warmer. A statistical analysis of a shear-frame device shows that the device is sensitive to rate-of-pull and to the frame area. 24 refs.

DESCRIPTORS: (*SOIL MECHANICS, LANDSLIDES, ROCK MECHANICS, (

SNOW AND SNOWFALL, Avalanches and Slides).

IDENTIFIERS: SHEAR STRENGTH

CARD ALERT: 443, 483, 502, 931

735661 ID NO.: E1770535661
STANDARD PENETRATION RESISTANCE IN COHESIONLESS SOILS.

Gavadi, E. A.

Suez Canal Auth, Egypt

Soils Found v 16 n 4 Dec 1976 p 47-60 CODEN: SOIFBE
 An extensive number of penetration tests were performed in a laboratory model. The results obtained were compared with field penetration tests in three sites of different characteristics with a view to obtain a general relationship between various penetration devices which are to be used in evaluating the strength of sandy soils. For laboratory tests various sizes of tanks filled with sands of various grading characteristics and of controlled densities were used. New statistical formulas were derived between various factors which influence soundings in sandy soils. 8 refs.

DESCRIPTORS: (*SOIL MECHANICS, (SOILS, Permeability), SAND AND GRAVEL, MATHEMATICAL MODELS.

IDENTIFIERS: PENETRATION RESISTANCE, COHESIONLESS SOILS

CARD ALERT: 483, 922, 931

735658 ID NO. - E1770535658
RISK ANALYSIS OF SLOPES AND ITS APPLICATION TO SLOPES IN ANATOLIAN SENSITIVE CLAYS.
 Alonzo, E. F.

Esc Tec Super de Ing de Caminos, Barcelona, Spain
 Geotechnique v 26 n 3 Sep 1976 p 453-472 CODEN: GTNOA8
 The problem of defining better measures of the safety of slopes has been approached from a probabilistic point of view. Using a mechanistic description of stability (the method of slices), a first order probability analysis was implemented to allow for a rational evaluation of the different sources of uncertainty involved. A preliminary sensitivity analysis shows that the uncertainties in the cohesion parameter, the pore-pressure and the method of analysis are the relevant ones in governing the resulting uncertainty in the slope safety. A relationship between mean safety factor and probability of failure is developed for the conditions likely to prevail in Champlain Sea deposits. 33 refs.

DESCRIPTORS: *SOIL MECHANICS, (GEOPHYSICS, Rock Properties), CLAY, PROBABILITY, (SOILS, Pore Pressure).
 IDENTIFIERS: SLOPE STABILITY, SLOPE PROTECTION
 CARD ALERT: 481, 483, 922, 931

735541 ID NO. - E1770535541
PREDICTABILITY OF VOLUME CHANGES OF SHALES.
 Annamalai, Manickam; Laguros, Joakim G.; Kumar, Subodh
 Istanbul Conf on Soil Mech and Found Eng, Turk, Mar 31-Apr 4 1975 Sponsored by Istanbul Tek Univ, Turk, 1975 v 1 p 197-203
 For experimental verification, four shales were selected to represent variations in texture and clay mineralogy, and were subjected to ultrasonic disaggregation. Using the statistical relationships, the volume changes of the ultrasonic treated shales were predicted in terms of their index properties and found to compare favorably with the corresponding volume changes measured experimentally. 5 refs.
 DESCRIPTORS: *SHALE, (SOILS, Testing), SOIL MECHANICS, STATISTICAL METHODS.
 CARD ALERT: 482, 483, 922, 931

731828 ID NO. - E1770531828
BIAXIAL SLIP OF A MASS ON A FOUNDATION SUBJECTED TO EARTHQUAKE MOTIONS.
 Crandall, Stephen H.; Lee, Samson S.

MIT, Cambridge, Mass
 Ing Arch v 45 n 5-6 1976 p 361-370 CODEN: INARAS
 The relative motion of a rigid mass on a horizontal foundation undergoing biaxial random motion in the horizontal plane is studied under the assumption that Coulomb friction acts between the mass and the foundation. The displacement of the mass with respect to the foundation is a two-dimensional random walk whose statistical parameter depend nonlinearly on the intensity and correlation of the biaxial excitation. Analytical results are obtained via the Fokker-Planck equation and the Equivalent Linearization procedure and simulation

results are obtained via the digital computer. These results may be useful for predicting the accumulated slip of a stiff compact structure free to slide on its foundation during an earthquake.

DESCRIPTORS: (*FOUNDATIONS, *Earthquake Resistance), (SOIL MECHANICS, Earthquake Resistance), (LANDSLIDES, Monitoring).
 CARD ALERT: 405, 483, 484, 931

731827 ID NO. - E1770531827
PROBABILISTIC APPROACH TO FOUNDATION DESIGN.
 Sidiqul, Javed Tahir; Niyogi, P. K.; Hon Hsieh, Su

Murray-McCormick Environ Group, Atlanta, Ga
 Istanbul Conf on Soil Mech and Found Eng, Turk, Mar 31-Apr 4 1975 Sponsored by Istanbul Tek Univ, Turk, 1975 v 2 p 85-97

A simplified procedure has been formulated which is reported to allow a considerable simplification over the conventional design methods and also provides direct information on safety of the structure. Different probabilistic distribution models are chosen to represent the variation in shear strength data and the applied loads and a method is presented to determine the design value of bearing capacity of the underlying soil at any particular chosen level of reliability. Design charts have been developed for deterministic loadings and soils strength having Gaussian or Lognormal distribution. 12 refs.

DESCRIPTORS: (*FOUNDATIONS, *Design), SOIL MECHANICS, PROBABILITY, MATHEMATICAL MODELS.
 IDENTIFIERS: SHEAR STRENGTH
 CARD ALERT: 405, 483, 921, 922, 931

728274 ID NO. - E1770428274
COMPARISON OF BEDROCK AND SURFACE SEISMIC INPUT FOR NUCLEAR POWER PLANTS.

Zaslavsky, Maurice; Wright, Lawrence H.
Univ of Calif, Lawrence Livermore Lab
Pap Presented and Discussed at the Int Conf on Numer Methods in Geomech, 2nd, Va Polytech Inst and State Univ, Blacksburg, Jun 1976 Publ by ASCE, New York, NY, 1976 v 2 p 991-1000
It is current practice in the nuclear industry and elsewhere to specify the seismic input to design calculations at the surface of the site, rather than at bedrock. Further, the need for detailed site analyses to define this seismic input are often eliminated by the use of statistically derived seismic input whose inherent conservatism renders them applicable to a variety of sites. The paper reports an investigation into some of the implications of these methods through an extensive parametric survey by comparing the site response between a surface specification of seismic input and a bedrock specification. The survey considered six typical sites consisting of the soil profiles with average shear wave velocities of 800, 1800, and 5000 fps, and two soil depths of 200 and 400 feet. Seismic input to these sites were then calculated in two ways with the program SHAKE.
DESCRIPTORS: (-STRUCTURAL ANALYSIS, *Earthquake Resistance), SOIL MECHANICS, ROCK MECHANICS, NUCLEAR POWER PLANTS, COMPUTER SIMULATION.
CARD ALERT: 931, 483, 723

727699 ID NO. - E1770427699
STATISTICAL VARIATION OF THE COMPLIANCE OF COAL.

Atkinson, Richard Henry; Ko, Hon-Yim
Atkinson-Noland & Assoc, Boulder, Colo
Pap Presented and Discussed at the Int Conf on Numer Methods in Geomech, 2nd, Va Polytech Inst and State Univ, Blacksburg, Jun 1976 Publ by ASCE, New York, NY, 1976 v 1 p 367-380
The constitutive relations of a commercial Illinois coal were determined in the laboratory. A multiaxial test cell was used to apply an arbitrary compressive principal stress state to a cubical specimen of the coal and the resulting strains were determined. The compliances thus determined show considerable scatter which might be expected for a material containing numerous bedding and cleat cracks. The data were thus subjected to statistical analysis to define the nature of the distribution of values and the numerical parameters of the distribution. The results of this study are expressed in terms of compliance matrices for an orthotropic material.
DESCRIPTORS: (-COAL, *Mechanical Properties), MATHEMATICAL STATISTICS, ROCK MECHANICS.
IDENTIFIERS: CONSTITUTIVE RELATIONS, COMPLIANCE MATRICES
CARD ALERT: 524, 922, 483

SAFETY OF SEISMIC PROTECTIVE SYSTEMS WITH RESERVE ELEMENTS.

Eisenburg, I. M.
TSNIISK Kutsheiko, Moscow, USSR
Proc of the Int Symp on Earthquake Struct Eng, St Louis, Mo, Aug 19-21 1976 Publ by Univ of Mo, Dep of Civ Eng, Rolla, 1976 v 2 p 927-943
Some results of the approximate analysis of safety of earthquake protective systems with reserve disengaging elements are presented. Systems with one and several reserve elements are considered. The overshoot random vibration approximation SEM DASH₂ a white noise process is assumed as a mathematical model of earthquake ground motion. A numerical example is given. It is shown that the failure probability of reserve elements structures is considerably lower, and the safety is much higher compared with such characteristics of structures without reserve elements. 22 refs.
DESCRIPTORS: (-BUILDINGS, *Earthquake Resistance), (-STRUCTURAL ANALYSIS, Failure), VIBRATIONS, (SOIL MECHANICS, Mathematical Models).
IDENTIFIERS: STRUCTURAL FRAMES
CARD ALERT: 402, 484, 931, 483

705583 ID NO. - E1770105583
RECENT DEVELOPMENTS IN THE INTERPRETATION OF DATA FROM JOINT SURVEYS IN ROCK MASSES.

Steffen, O. K. H.; Kerrich, J. E.; Jennings, J. E.
Steffen, Robertson & Kirsten, Johannesburg, S Afr
Proc of the Reg Conf for Afr, 6th: Soil Mech and Found Eng, Durban, S Afr, Sep 1975 Publ for S Afr Inst of Civ Eng, Div of Soil Mech and Found Eng by A. A. Balkema, Cape Town, S Afr, 1975 v 2 p 17-26
The paper defines some of the problems encountered during the evaluation of stability of rock slopes in large opencast mines and describes some statistical techniques used for the data interpretation. The definition of the boundaries to joint sets and estimation of lengths of joints and their spacing are dealt with in particular. The influence of instrumentation and observer errors were evaluated in a laboratory and field experiment. The conclusion is reached that considerably greater confidence can be placed on estimation of joint lengths and spacings when using statistical theory but that the definition of joint set boundaries are best obtained from a careful and subjective assessment of the data. 10 refs.
DESCRIPTORS: *ROCK MECHANICS, MATHEMATICAL STATISTICS, MATERIALS TESTING.
IDENTIFIERS: ROCK SLOPES, SLOPE STABILITY, ROCK MASSES.
JOINTS AND FRACTURES
CARD ALERT: 483, 922

685102 ID NO. E1761285102
**APPLICATIONS OF STATISTICS AND PROBABILITY IN SOIL AND
 STRUCTURAL ENGINEERING, 2ND INTERNATIONAL CONFERENCE,
 PROCEEDINGS, 1975.**

Schultze, Edgar (Ed.)
 Tech Hochschule, Aachen, Ger
 Conf. Proc. Stat. and Probab. in Soil and Struct. Eng., 2nd Int
 Conf. Proc. Pap. Aachen, Ger., Sep 15-18 1975 Publ by Dtsch Ges
 fuer Erd- und Grundbau, Essen, Ger., 1975, 3 v, 1266 p
 The Proceedings contain 53 papers presented at the
 conference, as well as general reports, discussions of the
 various sessions and papers, and a list of participants.
 Among the topics covered in the papers are probabilistic limit
 analysis and design of structures and earthworks, reliability
 estimates of structural systems, failure probability analysis,
 seismic risk evaluation, applications in bridge, foundation,
 dam, highway and slope design and analysis, stochastic
 formulation of soil properties, soil sampling and test data
 analyses, and others. Selected papers are indexed separately.
 DESCRIPTORS: (*STRUCTURAL ANALYSIS, *MATHEMATICAL MODELS),
 SOIL MECHANICS, MATHEMATICAL STATISTICS, PROBABILITY,
 STRUCTURAL DESIGN, RELIABILITY,
 IDENTIFIERS: STOCHASTIC ANALYSIS, RISK ANALYSIS, STABILITY
 ANALYSIS, SOIL-STRUCTURE INTERACTION
 CARD ALERT: 931, 922, 483, 408, 921

684731 ID NO. E1761284731
**STATISTICAL EVALUATION OF SOILS TEST DATA SEM DASHES 2.
 FACTOR ANALYSIS.**

Holtz, Robert D.; Schroder, Janet E.
 Purdue Univ., West Lafayette, Indiana
 Appl. of Stat. and Probab. in Soil and Struct. Eng., 2nd Int
 Conf. Proc. Aachen, Ger., Sep 15-18 1975 v 2 p 339-364. Publ
 by Dtsch Ges fuer Erd- und Grundbau, Essen, Ger., 1975
 An advanced multivariate statistical analysis technique
 called factor analysis was applied to twenty sets of
 laboratory and field data, which were previously analyzed by
 multiple linear regression procedures. The technique, which
 has not been used in soils engineering, enables the
 description of complex multi-variable data in terms of eight
 double quotes factors eight double quotes, which are
 hypothetical statistical constructs and which maximally
 reproduce the linear correlations among the variables. The
 paper illustrates the feasibility of the method and how the
 output of standard factor analysis computer programs is used
 to determine the engineering significance and validity of the
 computed factors and the association among the observed
 variables.
 DESCRIPTORS: (*SOILS, *Testing), MATHEMATICAL STATISTICS, (
 SOIL MECHANICS, Computer Applications),
 IDENTIFIERS: FACTOR ANALYSIS, MULTIVARIATE STATISTICAL
 ANALYSIS
 CARD ALERT: 483, 922, 723

684704 ID NO. E1761284704
**BAYESIAN DESIGN OF OPTIMAL EXPERIMENTS FOR THE ESTIMATION OF
 SOIL PROPERTIES.**

Veneziano, Daniele; Facciolo, Ezio
 MIT, Cambridge, Mass
 Appl. of Stat. and Probab. in Soil and Struct. Eng., 2nd Int
 Conf. Proc. Aachen, Ger., Sep 15-18 1975 v 2 p 191-213. Publ
 by Dtsch Ges fuer Erd- und Grundbau, Essen, Ger., 1975
 A Bayesian approach to the design of sampling networks for
 soil profile estimation is presented. The study proposes a
 rational guide to the design of boring networks for
 determining the depth of hard ground, or to any other soil
 layer of interest, over extended areas. Large-scale trends,
 rather than local variations, are supposed to be of primary
 interest although the model proposed has no such intrinsic
 restriction. The approach can be used in any exploration
 problem where the unknown soil property is a function of one
 or more spatial coordinates (soil strength, penetration
 resistance, water content, etc.). Refs.
 DESCRIPTORS: (*SOILS, *Sampling), MATHEMATICAL STATISTICS, (
 SOIL MECHANICS, Mathematical Models),
 CARD ALERT: 483, 913, 922

684647 ID NO. E1761284647
**VARIATIONAL INEQUALITY APPROACH TO THE STOCHASTIC FRICTION
 BOUNDARY VALUE PROBLEM AND APPLICATION IN SOIL MECHANICS.**

Panagiotopoulos, P. D.
 Tech Hochschule, Aachen, Ger
 Appl. of Stat. and Probab. in Soil and Struct. Eng., 2nd Int
 Conf. Proc. Aachen, Ger., Sep 15-18 1975 v 3 p 221-230. Publ
 by Dtsch Ges fuer Erd- und Grundbau, Essen, Ger., 1975
 The paper presents a finite element formulation of the
 friction boundary value problem of a material with
 nonquadratic deformation energy. With the formulation, more
 general boundary conditions than those permitted in other
 analyses may be included. The deterministic mathematical
 model combined with a modified Monte Carlo algorithm gives the
 solution of stochastic friction boundary value problems. The
 theory is illustrated by means of an example taken from soil
 mechanics. 10 refs.
 DESCRIPTORS: (*SOIL MECHANICS, *Mathematical Models),
 MATHEMATICAL STATISTICS, (MATHEMATICAL TECHNIQUES, Finite
 Element Method), FRICTION BOUNDARY VALUE, STOCHASTIC
 ANALYSIS,
 CARD ALERT: 482, 922, 921

684645 ID NO. - E1761284645
**METHOD FOR THE APPLICATION OF SOIL MECHANICS TO
 NON-HOMOGENEOUS SOILS.**

McAnally, P. A.
 Natl Conf Publ Inst Eng Aust n 75/4: Aust-NZ Conf on
 Geomech. 2nd, Brisbane, Jul 21-25 1975 p 26-30 CODEN: MP1EDX
 A statistically based model is developed to overcome the
 uncertainties in the selection of design parameters for soils
 arising from their non-homogeneity. Experimental verification
 of this model is presented. It is shown that conventional
 methods of selection of design parameters lead to an
 indefinite situation with respect to factor of safety. A
 method for the selection of design parameters and factor of
 safety is proposed, based on ensuring an acceptable
 probability of satisfactory performance. 12 refs.
 DESCRIPTORS: (*SOIL MECHANICS, *Mathematical Models), SOILS,
 FOUNDATIONS.
 IDENTIFIERS: NON-HOMOGENEOUS SOILS, DESIGN PARAMETERS
 CARD ALERT: 483, 922

684641 ID NO. - E1761284641
**APPLICABILITY OF REGRESSION ANALYSIS IN SOIL MECHANICS WITH
 THE HELP OF DATA-BANKS.**

Rizkallah, Victor; El Nimr, Ahmed
 Tech Univ, Hannover, Ger
 Appl of Stat and Probab in Soil and Struct Eng. 2nd Int
 Conf, Proc, Aachen, Ger, Sep 15-18 1975 v 2 p 423-438. Publ
 by Dtsch Ges fuer Erd-und Grundbau, Essen, Ger, 1975
 Statistical estimates for several soil parameters are
 determined. The results are generally obtained in polynomial
 forms of high orders, and they are prepared in complete sets
 of tables within the ranges of tested samples. The collected
 data are tested in laboratory and gathered in a data bank.
 Some of these results were tested through regression analyses
 with the aim of estimating some properties of a spacial soil
 namely the soft clayey sea silt. The comparison with measured
 results indicated the fairly good accuracy of the statistical
 estimation.
 DESCRIPTORS: (*SOIL MECHANICS, *Computer Applications),
 MATHEMATICAL STATISTICS,
 IDENTIFIERS: REGRESSION ANALYSIS
 CARD ALERT: 483, 723, 922

684231 ID NO. - E1761284231
ANALYSIS OF SIZE EFFECT BEHAVIOUR IN BRITTLE ROCK.

Brown, E. T.; Gonano, L. P.
 James Cook Univ of North Queensland, Aust
 Natl Conf Publ Inst Eng Aust n 75/4: Aust-NZ Conf on
 Geomech. 2nd, Brisbane, Jul 21-25 1975 p 139-143 CODEN:
 MP1EDX
 Statistical and empirical methods of describing the
 frequently observed size-strength dependency in rock are
 unsatisfactory. An analysis of the energetics of fracture

shows that the critical energy level required for crack
 propagation may vary with initial crack or discontinuity size,
 mode of fracture, and homogeneity of the stress distribution.
 Each of these factors can produce size effects. The results
 of punch bearing tests verify a theoretical conclusion that
 stress gradients can introduce apparent size effects. 24
 refs.

DESCRIPTORS: (*ROCK MECHANICS, *Stresses), (GEOPHYSICS, Rock
 Properties).
 IDENTIFIERS: FRACTURE, CRACK PROPAGATION, STRESS GRADIENTS
 CARD ALERT: 483, 481, 502

684225 ID NO. - E1761284225
**SOME FIELD PERMEATION PROPERTIES OF FRACTURED PERMIAN AND
 TRIASSIC SANDSTONES IN NORTHWEST ENGLAND.**

Cronk, J. M.; Howell, F. T.
 Warrington New Town Dev Corp, Engl
 ASME Pap n 76-Pet-43 for Meet Sep 19-24 1976, 5 p CODEN:
 ASMSA4
 The 1000-m thick series of Permian and Triassic sandstones
 in Northwest England exhibit both intergranular and fissure
 flow. However, estimates of their relative importance can be
 distorted by the statistical manipulation of test data.
 Additional parameters which are believed to independently
 identify the mechanism of flow are examined. These include
 variation of field permeability in 171 boreholes with respect
 to depth and radius of the pumped bore, distance from tectonic
 zones and consideration of the regional distribution of fluid
 bodies. Interpretation suggests that intergranular flow is
 dominant despite the fractured nature of the rock mass. 16
 refs.
 DESCRIPTORS: (*ROCK MECHANICS, *Stresses), (BOREHOLES,
 Exploratory), (GEOPHYSICS, Rock Properties).
 CARD ALERT: 483, 501, 481, 502

684223 ID NO. E1761284223
PRESENTATION OF FRACTURE DATA FOR ROCK MECHANICS.

Mount Isa Mines Ltd
Natl Conf Publ Inst Eng Aust n 75/4: Aust NZ Conf of Geomech, 2nd, Brisbane, Jul 21-25 1975 p 144 148 CUIJFN: NP1EDX

Fractures are sampled along straight lines within a rock domain, divided into fractures sets, and the data in each set then further divided into categories of orientation, spacing, continuity, waviness, apertures and spatial distribution. Data in each of these categories fits a particular mathematical statistical model and the best estimates of the model's population parameters can be obtained from the samples and presented in simple tables and diagrams. This presentation contains all the necessary data on the fracture pattern and can be readily understood and used by those who are applying the data for rock mechanics. 22 refs.

DESCRIPTORS: (*ROCK MECHANICS, *Sampling), (GEOPHYSICS, Rock Properties).

IDENTIFIERS: FRACTURE, FRACTURE PATTERNS, CLASSIFICATION
CARD ALERT: 483, 481, 922, 502

684220 ID NO. E1761284220
PROBABILITY OF FAILURE AND EXPECTED VOLUME OF FAILURE IN HIGH ROCK SLOPES.

McMahon, B. K.
Aust Rock Eng Consult
Natl Conf Publ Inst Eng Aust n 75/4: Conf of Geomech, 2nd, Brisbane, Jul 21-25 1975 - 308-313 CODEN: NP1EDX
Long high rock slopes such as those obtained in large open pit mines are excavated in a series of lifts. Slope failures can occur by sliding along fractures, or combinations of fractures, at any stage in the slopes' history. Procedures for calculating the probability of slope failure are defined as operational failures (right double quotes), defined as failures above a certain size, and the expected volumes of such failures are presented. Procedures are also given for calculating the percentage of the area of a major slope affected by operational failures of berms reduced to a width less than that required by operational practice or government regulation. In projects where significant risk of failures can be accepted, the optimum slope is the one where the present value of the costs of initial excavation plus the expected costs resulting from failures are a minimum.
DESCRIPTORS: (*ROCK MECHANICS, *Failure), EXCAVATION, (MINES AND MINING, Open Pit).

IDENTIFIERS: SLOPE STABILITY, FRACTURING
CARD ALERT: 483, 421, 405, 502

Appl of Stat and Probab in Soil and Struct Eng, 2nd Int Conf, Proc, Aachen, Ger, Sep 15-18 1975 v 2 p 387-396. Publ by Dtsch Ges fuer Erd- und Grundbau, Essen, Ger, 1975

The paper discusses such design for an anchored sheet pile wall using the free earth support method. For engineering design purposes, average values of the soil properties and layer thickness of multilayer site are assumed and the critical depth for a unit factor of safety is computed. Assuming that the variation of the soil properties varies according to log normal distributions, values of the soil properties are generated using Monte Carlo techniques for given values of the coefficient of variation and median values of the soil parameters. These soil properties are then used to compute the anchored sheet pile wall design depth, which is compared with the critical depth. Refs.

DESCRIPTORS: (*RETAINING WALLS, *Design), PROBABILITY, SOIL MECHANICS, PILES, FOUNDATIONS.

IDENTIFIERS: SHEET PILE WALLS
CARD ALERT: 405, 922, 483, 408

683524 ID NO. E1761283524
PROBABILISTIC LIMIT ANALYSIS OF PLATES ON PLASTIC SUBGRADE.

Dolinski, K.; Sawczuk, A.
Inst of Fund Technol Res, Warsaw, Pol
Appl of Stat and Probab in Soil and Struct Eng, 2nd Int Conf, Proc, Aachen, Ger, Sep 15-18 1975 v 3 p 185-205. Publ by Dtsch Ges fuer Erd- und Grundbau, Essen, Ger, 1975

Load carrying capacity of plates supported by plastic foundation is considered within the random functions theory. In the probabilistic approach the load carrying capacity is specified by a load multiplier which is a random variable. The question of applying kinematically admissible load multipliers is discussed with respect to structures with a stochastic yield condition and subjected to random loading fields. The theorem is applied to assess the probability of collapse loads for circular plates resting on plastic subgrade. The yield point of the subgrade is described either by a random series or by a random function. Plastic properties of the plate are described by a random yield moment. 13 refs.

DESCRIPTORS: (*PLATES, *Foundations), (SOIL MECHANICS, Mathematical Models), PROBABILITY, IDENTIFIERS: LIMIT ANALYSIS
CARD ALERT: 408, 931, 483, 922

684168 ID NO. E1761284168
DESIGN OF SHEET PILE WALLS USING PROBABILISTIC METHODS.

Kovacs, William O.; Yao, James T. P.
Purdue Univ, West Lafayette, Indiana

683471 ID NO. - E1761283471
EXTREMUM AND VARIATIONAL PRINCIPLES IN PLASTICITY.

Rozpr Inz v 23 n 3 1975 p 393-421 CODEN: RZINAZ
Lippmann, H.
Extremum of functions (functionals) Ψ for numerical reasons are frequently expressed in the weaker variational form $\delta \Psi_{\text{min}} \Psi \leq \delta \Psi_{\text{max}} \Psi$. The relationship between the two forms is discussed. The variational and extremum principles for rigid plastic materials are considered. The classical dual theorem of Karman-Sadowski-Phillips-Hill upper and lower bound principles are given in a general form which is not restricted to specific boundary conditions, or to incompressibility, rate-independence, homogeneity, or isotropy. They are illustrated by a series of examples taken from structural mechanics, metal forming technology and soil mechanics to show some recently studied features concerning surface fraction, action of volume forces, and volume compression, or extension, respectively. Static problems for elastic-plastic material are covered and rate-dependent or dynamic plasticity is discussed. 118 refs.
DESCRIPTORS: *PLASTICITY. (MATERIALS TESTING. Creep).
STATISTICAL METHODS. MECHANICS.
CARD ALERT: 931, 922, 421

consolidation settlements is introduced in a case study performed at two flood protection levee test sections in the East Atcharalaya Basin, Louisiana. The large differences in measured settlement values are explained by a probabilistic settlement prediction model which accounts for the variability in initial effective stresses, stress increments and compression ratios. Critical parameters in the model are identified and the role of engineering judgement in the use of the model is emphasized.

DESCRIPTORS: *LEVEES. (SOILS. Consolidation). PROBABILITY. (SOIL MECHANICS. Mathematical Models).
IDENTIFIERS: CONSOLIDATION SETTLEMENT
CARD ALERT: 442, 483, 922

681184 ID NO. - E1761281184
INFLUENCE OF VOID DISTRIBUTION AND ENTROPY ON THE ENGINEERING PROPERTIES OF GRANULAR MEDIA.

Jowitt, P. W.; Munro, J.
Imp Coll of Sci & Technol. London, Engl
Appl of Stat and Probab in Soil and Struct Eng. 2nd Int Conf, Proc, Aachen, Ger. Sep 15-18 1975 v 2 p 365-385. Publ by Dtsch Ges fuer Erd-und Grundbau, Essen, Ger. 1975
A review of work concerned with the microstructure and behavior of granular media is presented, and the need for a probabilistic approach to the study of granular media is emphasized. Information theory is used as a fundamental concept to explore the statistical aspects of a granular material. The connection between information theory and thermodynamic entropy allows inferences to be drawn on the significance of the critical void ratio, and comparisons to be made with existing experimental results. Refs.
DESCRIPTORS: (*GRANULAR MATERIALS. *Analysis). PROBABILITY. SOIL MECHANICS. THERMODYNAMICS. INFORMATION THEORY.
IDENTIFIERS: MICROSTRUCTURE
CARD ALERT: 483, 922, 641

681836 ID NO. - E1761281836
ON THE RELIABILITY OF FLOOD LEVEE SYSTEMS.

Bogard, Istvan; Duckstein, Lucien; Szidarovszky, Ferenc
Water Resour Cent, Budapest, Hung
Appl of Stat and Probab in Soil and Struct Eng. 2nd Int Conf, Proc, Aachen, Ger. Sep 15-18 1975 v 1 p 47-66. Publ by Dtsch Ges fuer Erd-und Grundbau, Essen, Ger. 1975
The paper discusses how the reliability of a flood levee reach can be investigated by considering the reach to be a soil structure system. The method permits estimation of the system reliability of levee reaches with due allowance to the following factors: the stochastic character of flood loads when there are two nonindependent stochastic loads; the various failure modes; the uncertain resistances of subreaches against the various failure modes, even if there is a spatial dependence between the resistances of subsequent subreaches; the uncertainties caused by parameter estimation due to finite sample sizes. Refs.
DESCRIPTORS: (*LEVEES. *Reliability). SOIL MECHANICS. MATHEMATICAL STATISTICS.
CARD ALERT: 442, 913, 483, 922

681835 ID NO. - E1761281835
PROBABILISTIC PREDICTION OF LEVEE SETTLEMENTS.

Vanmarcke, Erik H.; Fuleihan, Nadim F.
MIT, Cambridge, Mass
Appl of Stat and Probab in Soil and Struct Eng. 2nd Int Conf, Proc, Aachen, Ger. Sep 15-18 1975 v 2 p 175-190. Publ by Dtsch Ges fuer Erd-und Grundbau, Essen, Ger. 1975
A probabilistic approach to the determination of

681114 ID NO. EI761291114
THEORETICAL AND PRACTICAL ASPECTS OF LAND STABILITY
CLASSIFICATION.

Shirley, A. F.
Andrew Shirley & Assoc Ltd
Natl Conf Publ Inst Eng Aust n 75/4 Aust-NZ Conf of
Geomech. 2nd. Brisbane, Jul 21-25 1975 p 303-307 CODEN
NP1EDX

The relevance and accuracy of various theoretical concepts and practical procedures adopted in the assessment of the stability of land is discussed to enable the understanding of a probability approach to stability assessment. The necessity for the detailed understanding of the site geological and environmental processes is emphasized, and guidelines are offered on methods of data collection, land stability assessments, and subdivisional planning. The two-stage classification system outlined in the paper requires careful field observations and thorough understanding of the various theoretical approaches to soil behavior. Land Stability Classification systems are suggested for both 'left double quotes Regional 'right double quotes and 'left double quotes Specific Project 'right double quotes type of assessments. 14 refs.

DESCRIPTORS: (*GEOLOGY, *TECTONICS). (URBAN PLANNING, Land Use), EARTHQUAKES, LANDSLIDES, SUBSIDENCE, SOIL MECHANICS, IDENTIFIERS: LAND STABILITY, CLASSIFICATION SYSTEMS
CARD ALERT: 481, 403, 484, 483

680952 ID NO. EI761280952
RAFT FOUNDATIONS SEM DASHES CASE STUDY AND SENSITIVITY
ANALYSIS.

Fraser, R. A.; Wardle, L. J.
CSIRO, Melbourne, Aust
Appl of Stat and Probab in Soil and Struct Eng. 2nd Int Conf. Proc. Aachen, Ger, Sep 15-18 1975 v 2 p 89-117. Publ by Dtsch Ges fuer Erd- und Grundbau, Essen, Ger, 1975
Three multi-story office buildings founded on raft foundations have been studied. Observations were made of settlements, contact pressures, column loads, porewater pressures and settlements at depth beneath the raft foundation. A computer program has been written for the design of raft foundations; the soil-raft interaction behavior being modelled by a loaded plate on a layered cross-anisotropic elastic soil system. A first order probabilistic analysis is conducted to indicate the important parameters needed in design. For the three case studies the actual performance is compared with the predicted performance. Refs.

DESCRIPTORS: (*FOUNDATIONS, *Structural Analysis), SOIL MECHANICS, PROBABILITY, (STRUCTURAL DESIGN, Computer Applications).
IDENTIFIERS: RAFT FOUNDATIONS, SOIL-STRUCTURE INTERACTION
CARD ALERT: 405, 931, 483, 922

681947 ID NO. EI761280947
STATISTICAL OPTIMIZATION OF FRICTION PILE FOUNDATIONS.

Wagner, Sydney P.; Krizek, Raymond J.
Soil & Water Eng Inc, Grand Rapids, Mich
Appl of Stat and Probab in Soil and Struct Eng. 2nd Int Conf. Proc. Aachen, Ger, Sep 15-18 1975 v 2 p 523-544. Publ by Dtsch Ges fuer Erd- und Grundbau, Essen, Ger, 1975

The paper describes methods whereby probability and decision theory can be used to optimize the cost of friction pile foundations in soft cohesive soils. Appropriate probability distributions, substantiated insofar as possible by available data, are employed in conjunction with conventional deterministic relationships to compute the pile length required for a given group configuration, and a cumulative probability distribution for pile length is obtained by use of the Monte Carlo technique. The foundation costs is minimized on the basis of a cost equation involving the cost per unit length of in-place, cost of the pile cap, and cost associated with the probability of a foundation failure. The effects of variations in the approximations for individual parameters are evaluated. Refs.

DESCRIPTORS: (*FOUNDATIONS, *Piles), (STRUCTURAL DESIGN, Optimization), SOIL MECHANICS, PROBABILITY, IDENTIFIERS: FRICTION PILES
CARD ALERT: 405, 408, 922, 483

680928 ID NO. EI761280928
STOCHASTIC CALCULATION OF FOUNDATIONS WITH ELASTIC UNILATERAL AND FRICTION BOUNDARY CONDITIONS.

Panagiotopoulos, P. D.
Tech Hochschule, Aachen, Ger
Appl of Stat and Probab in Soil and Struct Eng. 2nd Int Conf. Proc. Aachen, Ger, Sep 15-18 1975 v 3 p 231-244. Publ by Dtsch Ges fuer Erd- und Grundbau, Essen, Ger, 1975
The paper develops a theory for calculating movements between a foundation and the supporting soil which takes friction into account. The approach considers the influence exerted on the problem by the stochastic character of the soil, the structure and the loads. For this reason the deterministic mathematical model is combined with a Monte Carlo 'left double quotes pseudo-random generator 'right double quotes. A new boundary value problem of elasticity is formulated by combining the friction boundary conditions with the elastic unilateral boundary conditions. Friction and elastic unilateral boundary conditions are considered coupled for the analysis. 13 refs.

DESCRIPTORS: (*FOUNDATIONS, MATHEMATICAL STATISTICS, (SOIL MECHANICS, Friction), IDENTIFIERS: SOIL-STRUCTURE INTERACTION, STOCHASTIC ANALYSIS
CARD ALERT: 483, 405, 922, 931

680635 ID NO - E1761280635

UNCERTAINTIES AND DECISION IN DESIGN OF EMBANKMENT.

Mitsuo, Munoru, Kurada, Katsuhiko; Asakura, Akira

Nagoya Univ, Jap

Appl of Stat and Probab in Soil and Struct Eng. 2nd Int Conf. Proc. Aachen, Ger, Sep 15-18 1975 v 2 143-153. Publ by Dtsch Ges Erd-und Grundbau, Essen, Ger., 1975

The paper discusses an optimum procedure for design of an embankment where there are uncertainties with regard to a stability problem. It investigates the reliability of the traditional safety factor method. The question of the probability of embankment failure due to sliding is treated first and then the transition process of increasing strength due to consolidation and the formulation design as a decision problem are discussed with numerical examples. 11 refs.

DESCRIPTORS: (*EMBANKMENTS, *Structural Analysis).

STRUCTURAL DESIGN, SOIL MECHANICS.

IDENTIFIERS: STABILITY ANALYSIS

CARD ALERT: 405, 483, 931, 408

680634 ID NO - E1761280634

STOCHASTIC PROPAGATION OF RUPTURE SURFACES WITHIN SLOPES.

Athanasios-Grivas, Dimitrios; Harr, Milton, E.

Purdue Univ, West Lafayette, Indiana

Appl of Stat and Probab in Soil and Struct Eng. 2nd Int Conf. Proc. Aachen, Ger, Sep 15-18 1975 v 1 p 33-53. Publ by Dtsch Ges fuer Erd-und Grundbau, Essen, Ger., 1975

The paper describes a mechanism which models the rupture propagation in a soil embankment and analyzes the related parameters. The material comprising the structure of the slope is considered to be discrete rather than a continuum. Rupture is treated as the locus of voids travelling through the medium under the influence of an induced energy field. Since such a process is stationary, time averages can be replaced by space averages acknowledging the ergodic nature of the system. The force distribution along any vertical section is found to be given by a Pearson type I curve. 29 refs.

DESCRIPTORS: (*EMBANKMENTS, *Structural Analysis).

MATHEMATICAL STATISTICS, SOIL MECHANICS.

IDENTIFIERS: STOCHASTIC ANALYSIS, SLOPE STABILITY

CARD ALERT: 405, 483, 931, 922

680630 ID NO - E1761280630

PROBABILITY-BASED SHORT TERM DESIGN OF SOIL SLOPES.

Fang, W H; Yucemen, M S; Ang, A H

Univ of Ill at Urbana-Champaign

Can Geotech J v 13 n 3 Aug 1976 p 201-215. CODEN: CGJ0AH

The uncertainties involved in the short term stability of soil slopes have been evaluated from an extensive literature survey. A procedure for developing design of earth slopes based on a permissible risk is formulated whereby experience, published research results, experimental test data and judgement can be consistently incorporated in the evaluation of uncertainties and reliability of a given design. An

example of slope design is presented to illustrate the proposed risk-based design method. Refs.

DESCRIPTORS: (*EMBANKMENTS, *Design), PROBABILITY, SOIL MECHANICS.

IDENTIFIERS: SOIL SLOPES, SLOPE STABILITY

CARD ALERT: 405, 483, 922

680340 ID NO - E1761280340

APPLICATIONS OF FIRST-ORDER UNCERTAINTY ANALYSIS IN THE FINITE ELEMENTS METHOD IN LINEAR ELASTICITY.

Cambou, Bernard

Inst de Ing UNAM, Mexico City, Mex

Appl of Stat and Probab in Soil and Struct Eng. 2nd Int Conf. Proc. Aachen, Ger, Sep 15-18 1975 v 1 p 67-87. Publ by Dtsch Ges fuer Erd-und Grundbau, Essen, Ger., 1975

The paper describes a method which permits an approximate estimation of uncertainty in the results of a linear elasticity calculus. It is based upon the estimation of the uncertainties which affect the various parameters introduced into the calculus. This method appears to be particularly useful for three kinds of studies: For every problem which can be solved by the finite elements method in linear elasticity, the program permits an evaluation of the sensitivity of the analysis results according to the various parameters introduced into the calculus. Where experimental results exist, the method enables a judgement of whether the differences between the calculus and experimental results can be explained by errors in the data. In statistical studies of soil properties in large constructions, the method can give an idea of the size of the confidence intervals of the displacements and stresses corresponding to a given probability.

DESCRIPTORS: *ELASTICITY, PROBABILITY, SOIL MECHANICS, ROCK MECHANICS, (MATHEMATICAL TECHNIQUES, Finite Element Method).

IDENTIFIERS: LINEAR ELASTICITY

CARD ALERT: 931, 922, 483, 921

690172 ID NO. E1761280172
**INFLUENCE OF THE VARIABILITY OF COARSE GRAINED MATERIALS
 PROPERTIES ON THE STABILITY OF EARTH DAMS.**

Evangelista, Aldo; Pellegrino, Arturo; Viggiani, Carlo
 Univ of Napoli, Italy

Appl of Stat and Probab in Soil and Struct Eng. 2nd Int
 Conf. Proc. Aachen, Ger., Sep 15-18 1975 v 2 p 71-87. Publ by
 Dtsch Ges fuer Erd-und Grundbau, Essen, Ger., 1975

The variability of textural and compaction properties of
 coarse grained materials of fluvial origin employed in the
 construction of 8 earth dams in Italy are discussed on the
 basis of the results of placement control tests. The shear
 strength of these materials is investigated by means of a
 broad laboratory investigation; a correlation between
 friction angle and the porosity is established. The influence
 of the variability of materials properties on the stability of
 an earth dam is analyzed by means of a probabilistic approach.

DESCRIPTORS: (1-DAMS, EMBANKMENT, *Stability), (GRANULAR
 MATERIALS, Analysis), SOIL MECHANICS, PROBABILITY.

CARD ALERT 441, 408, 483

677651 ID NO. E1761177651
REGRESSION ANALYSIS OF SOIL COMPRESSIBILITY.

Azzouz, Amir S.; Krizek, Raymond J.; Corotis, Ross B.
 MIT, Cambridge, Mass

Soils Found v 16 n 2 Jun 1976 p 19-29 CODEN: SOIF8E
 Statistical techniques are used to analyze and evaluate
 experimental data from more than 700 consolidation tests on a
 large variety of undisturbed soils, and regression equations
 are developed to estimate the compression index and the
 compression ratio from classification or index data. It is
 found that both the compression index and the compression
 ratio can be reasonably well approximated by use of a simple
 linear regression model involving only the initial void ratio.
 16 refs.

DESCRIPTORS: (1-SOILS, *Consolidation), STATISTICAL METHODS,
 SOIL MECHANICS.

IDENTIFIERS: REGRESSION ANALYSIS

CARD ALERT: 483, 922, 931

670275 ID NO. E1761070275
**FOUNDATION ANALYSIS OF MARINE GRAVITY STRUCTURES SUBMITTED
 TO CYCLIC LOADING.**

Rodin, J. P.; Deleuil, G.; Zaleski-Zamenhof, L. C.
 Doris, G.

Offshore Technol Conf 8th Annu. Proc. Houston, Tex. May 3-6
 1976 v 1 Pap OTC 2475 p 571-584 CODEN: OTC28A

The paper presents an original method of soil analysis using
 elasto plastic finite elements. The method is a deterministic
 approach of the fatigue problems which consist in correlating
 cyclic laboratory test results with magnitude and duration of
 wave loadings. The loadings used for the soil analysis are
 determined by a separate statistical study. The analysis
 presented aims at a sound evaluation of the safety criteria of

gravity platform foundations taking into account the fatigue
 effects.

DESCRIPTORS: (1-SOIL MECHANICS, *Mathematical Models), (1-
 FOUNDATIONS, Underwater), (MARINE PLATFORMS, Foundations),
 CLAY.

CARD ALERT: 483, 931, 405, 921

669802 ID NO. E1761069802
DISCONTINUITY SPACINGS IN ROCK.

Priest, S. D.; Hudson, J. A.
 Transp & Road Res Lab, Berks, Engl

Int J Rock Mech Min Sci Geomech Abstr v 13 n 5 May 1976 p
 135-148 CODEN: IRMGEG

The possible distributions of discontinuity spacing along a
 straight line through a rock mass are considered. Unless
 there is a large predominance of evenly spaced
 discontinuities, any combination of evenly spaced, clustered
 and randomly positioned discontinuities leads to a negative
 exponential form of frequency vs. spacing value curve. The
 negative exponential form was confirmed by field discontinuity
 scanline surveys in three tunnels. Recommendations are made
 concerning the method of presenting discontinuity spacing
 data, the scanline length necessary for reasonable estimates
 of discontinuity frequency and the number of sample values
 required in a discontinuity survey. 21 refs.

DESCRIPTORS: *ROCK MECHANICS, FRACTURE MECHANICS,
 PROBABILITY.

CARD ALERT: 483, 502, 931, 922

668555 ID NO. E176106R-55
**IMPACT OF SOIL-STRUCTURE INTERACTION ON THE PROBABILISTIC
 FREQUENCY VARIATION OF CONCRETE STRUCTURES**

Hadjian, A. H.; Hamilton, C. W.
 Bechtel Power Corp., Norwalk, Calif.
 Int Conf on Struct Mech in React Technol. 3rd. Trans.
 London, Engl., Sep 1-5 1975 v 4 pt K3/8. 10 p. Sponsored by
 Coma of the Eur Communities, Brussels, Belg. 1975
 Earthquake response of equipment in nuclear power plants is
 characterized by floor response spectra. Since these spectra
 peak at the natural frequencies of the structure, it is
 important, both from safety and cost standpoints, to determine
 the degree of the expected variability of the calculated
 structural frequencies. The present paper extends a previous
 work on the variability of the natural frequencies of
 structures due to the variations of concrete properties and
 presents a rigorous approach to evaluate frequency variations
 based on the probability distributions of both the structural
 and soil parameters and how they jointly determine the
 distributions of the natural frequencies. The impact of soil
 properties on the structural frequencies stems from the fact
 that soil-structure interaction is an important consideration
 for massive structures. The methodology used and the results
 obtained are discussed. 5 refs.
 DESCRIPTORS: *NUCLEAR POWER PLANTS. *Earthquake Effects). (CONCRETE CONSTRUCTION. Accidents. Prevention). SOIL
 MECHANICS. (MATHEMATICAL TECHNIQUES. Numerical Methods).
 CARD ALERT 405, 483, 484, 617, 921, 931

666799 ID NO. E176106G799
**BEARING PRESSURE UNDER FOUNDATION MATS DUE TO TRIAXIAL
 SEISMIC EXCITATION**

Parimi, S. R.; Khanna, J. K.; Seltur, A. V.
 Fluor Pioneer Inc., Chicago, Ill.
 ASCE Spec Conf on Struct Des of Nucl Plant Facil. 2nd. Proc
 New Orleans, La. Dec 8-10 1975 v 1-B p 989-1006. Publ by
 ASCE, New York, NY, 1975
 The paper proposes a rational procedure for computation of
 bearing pressures under a foundation mat due to the
 simultaneous application of dead loads and the earthquake
 forces. The method, which is based on theory of probability,
 computes the bearing pressure values with the same confidence
 limits as the applied earthquake forces. The formulas derived
 are, in general, applicable to foundation mats of arbitrary
 shapes. As a specific case, the proposed method is applied to
 a circular mat and two numerical examples of a circular
 foundation are solved. The resulting maximum bearing
 pressures are compared with the pressures available from a
 time history analysis.
 DESCRIPTORS: *FOUNDATIONS. *Structural Analysis). SEISMIC
 WAVES. (SOIL MECHANICS. Bearing Capacity). MATHEMATICAL MODELS
 CARD ALERT: 405, 931, 484, 483

648472 ID NO. E1760748872
**STATISTICAL STUDY ON A CONVENTIONAL SLEIGHT DOUBLE QUOTES
 SAFETY FACTOR METHOD SLEIGHT DOUBLE QUOTES**

Matsuda, Minoru; Asakura, Akira
 Nagoya Univ., Jpn.
 SLEIGHT found v 16 n 1 Mar 1976 p 75-90 CODEN: SOIFBE
 The safety factor which may be defined as the ratio of the
 resistance of a structure to the applied loads is intended to
 cover all the uncertainties about strength, loads and
 mechanical theories. In this paper mathematical structures of
 these uncertainties in the stability problem of an embankment
 are considered. Some points are discussed about the sleight
 double quotes constancy of coefficient of variation sleight
 double quotes of undrained strength in a natural ground and
 this constancy plays the role to express the transition
 process of a state of ground. The parameters of a probability
 distribution of failure are estimated under the evaluation of
 the utility of an embankment. The loss function is defined by
 two factors, the one is a probability of failure and the other
 is a preference function. This definition shows that the
 Bayesian decision criterion is most reasonable. 23 refs.
 DESCRIPTORS: *EMBANKMENTS. (STRUCTURAL DESIGN. Safety Factor
 1. STATISTICAL METHODS. SOIL MECHANICS. PROBABILITY.
 IDENTIFIERS: SHEAR STRENGTH. STABILITY ANALYSIS
 (ARD ALERT: 405, 408, 483, 922, 931

648472 ID NO. E1760748872
EARTH SLOPE RELIABILITY BY A LEVEL-CROSSING METHOD

Catalan, J. Maria; Cornelli, C. Allin
 Iglesias, Vasquez, Del Nido, and Bonnet, Puerto Rico
 ASCE J Geotech Eng Div v 102 n 6 Jun 1976 p 591-604
 CODEN: AJGGER6
 An approximate formulation for the reliability analysis of
 earth slopes was derived by transforming the slope reliability
 analysis problem into a level-crossing problem. solved
 approximately by finding the expected number of minima of the
 safety margin (process) that lie below zero. The main feature
 of the solution is that, in effect, it considers the slope as
 a series system with an infinite number of (correlated)
 failure modes. The formulation was used to estimate the
 probability of failure of specific earth slopes. The results
 obtained imply that the use of the failure mode of least
 reliability to approximate the probability of failure of the
 slope may be highly unconservative and may predict incorrectly
 even the signs of changes in the slope reliability with
 changes in parameter values. 14 refs.
 DESCRIPTORS: *SOIL MECHANICS. (PROBABILITY. Random Processes
 1. RELIABILITY. STRUCTURAL ANALYSIS.
 IDENTIFIERS: SLOPE STABILITY. GEOTECHNICAL ENGINEERING
 CARD ALERT: 483, 913, 922, 931

640490 ID NO. - E1760640490
SHEET PILE INTERLOCK TENSION-PROBABILISTIC DESIGN

Kay, J. Neil
Cornell Univ., Ithaca, NY
ASCE J Geotech Eng Div V 102 n 5 May 1976 p 411-423
CODEN: AJGEB6

A design method based on probability theory is particularly appropriate for a cellular sheet pile-type structure in which an isolated low strength interlock can cause catastrophic failure. A probabilistic approach provides for a more consistent balance between safety and economics than does the conventional method in that it properly apportions the relative uncertainties in the design parameters for each particular problem. In this study interlock strength data were combined with probability distributions representative of uncertainty in the coefficient of earth pressure and in the cell fill unit weight. Failure probabilities for a wide range of field conditions were determined through Monte Carlo simulation. Multiple regression curve fitting techniques were then used to develop the results in a nondimensional form suitable for rapid design or analysis. A design example is given and comparisons are made with results based on the conventional approach. 14 refs.

DESCRIPTORS: (PILES, Driving), SOIL MECHANICS, INTERACTION, IDENTIFIERS: SHEET PILES, SOIL-STRUCTURE, EARTH PRESSURE, GEOTECHNICAL ENGINEERING, PROBABILITY THEORY, CARD ALERT: 405, 407, 483, 931

632763 ID NO. - E1760532763
DYNAMIC BEHAVIOR OF PIT SLOPES IN RESPONSE TO BLASTING AND PRECIPITATION

Ko, K. C.; McCarter, M. K.
W. A. Wahler & Assoc., Palo Alto, Calif
Proc Symp Rock Mech 15th, for Meet, Custer State Park, SD, Sep 17-19 1973, Publ 1975 p 363-383 CODEN: PSRRAG

The complex nature of geomechanical properties, present in large open pit slopes, are difficult if not impossible to define in absolute units. For this reason, current design procedures tend towards statistical evaluation of geologic and engineering parameters. Such procedures result in a probability analysis in which the designed slope is selected on the basis of failure risk level. A failure risk level of zero is impractical; therefore, acceptable designs must allow for possible slope failure. This paper presents a brief discussion of the rheologic model describing slope movement, various types of continuous time-displacement curves, and the effect of blasting and precipitation on quasi-stable slide areas. 3 refs.

DESCRIPTORS: (MINES AND MINING, Blasting), ROCK MECHANICS, RHEOLOGY, IDENTIFIERS: CARD ALERT: 502, 483, 931

627134 ID NO. - E1760427134
TENSION FATIGUE OF ROCKS.

Rokhnachev, M. P.; Gromova, N. V
A. A. Skochinskii Min Inst, Moscow, USSR
Sov Min Sci V 11 n 3 May-Jun 1975 p 216-219 CODEN: SMNSAT
Apparatus using pulsating loads and statistical processing of test results are discussed. Data are shown in graphical, tabular, and equation form. 3 refs.
DESCRIPTORS: (ROCK MECHANICS, Testing), (MATERIALS TESTING Fatigue), IDENTIFIERS: PULSATING LOADS, CARD ALERT: 483, 502, 421, 422, 423

626692 ID NO. - E1760426692
PREDICTING THE CUTTING RESISTANCE OF POTASH ORES.
Zil'bert, I. S.; In, V. A.; Lyuboshchinskii, D. M.
Giproglegornesh, Karaganda, USSR
Sov Min Sci V 11 n 2 Mar-Apr 1975 p 160-162 CODEN: SMNSAT
Resistances, depths of occurrence, and contents of rock-forming components were analyzed for correlations between content of insoluble residue, depth of seams, and resistance. Results are tabulated. 4 refs.
DESCRIPTORS: (POTASH MINES AND MINING, Cutters), ROCK MECHANICS, (CUTTING TOOLS, Testing), (MECHANICAL VARIABLES MEASUREMENT, Forces), STATISTICAL METHODS, CARD ALERT: 922, 505, 603, 483, 502, 943

619654 ID NO. - E1760319654
EFFECT OF THE VOLUME OF THE SPECIMEN ON THE FLEXURAL STRENGTH OF MAKRAANA MARBLE.

Kaul, B. K.; Chattopadhyay, B. C.
Reg Eng Coll, Kurukshetra, India
Symp on Rock Mech and Tunneling Probl, Proc, Reg Eng Coll, Kurukshetra, India, Dec 17-18 1973 v 1 p 200-203. Publ by Sarita Prakashan, Meerut, India, 1973

The effect of sample volume on the bending tensile strength of centrally loaded marble beams have been studied. Statistical approach for tensile strength of materials, based on the weakest link theory, has been supported qualitatively by the experimental results. It has been found that the so-called 'left double quoted' material constants 'right double quoted' involved in that theory do not remain constant as such for this rock, but fall in a reasonable range.

DESCRIPTORS: (ROCK MECHANICS, Materials, Mechanical Properties), (MATHEMATICAL MODELS, Geophysics, Rock Properties), IDENTIFIERS: TENSILE STRENGTH, CARD ALERT: 483, 421, 422, 923, 481

616649 ID NO - E1760316049

FACTOR OF SAFETY IN ROCK MECHANICS.

Ramaswamy, S. V.
Smp on Rock Mech and Tunneling Probl., Proc. Reg Eng Coll., Kurukshetra, India, Dec 17-18 1973 v 1 p 155-161. Publ by Sarita Prakashan, Meerut, India, 1973
The reliability of structures founded on or within the rock mass is assessed through the factor of safety concepts in which the actual factor is chosen on the basis of past experience and precedent. In many cases, the safety factor may be an illusion and its numerical value may not represent the real margin of safety of the structure. The reliability of the structure may alternately be expressed in terms of the probability of the rock strength being smaller than the associated stress. The paper discusses the limitations of the factor of safety concept as applied to rock structures. Frequency distributions of strength of rocks are analyzed. The relation between the factor of safety and the reliability for some types of rocks are indicated. Refs
DESCRIPTORS: *ROCK MECHANICS. (STRUCTURAL DESIGN, Safety Factor).
CARD ALERT 483, 408, 922, 931

617222 ID NO - E1760317222

ANALIZA KORELACYJNA W PETROFIZYCE. Sleft brackets Correlation Analysis in Petrophysics sright brackets

Ujworski, Andrzej
Przedsiębiorstwo Poszukiwan Geofiz. Pol
Tech Poszukiwan Geol v 14 n 4 1975 p 3-7. CODEN: TGE00C
A new method of qualitative, statistical interpretation of rock physical properties research is presented. The calculation scheme was programmed for Odra 1204 computer. The example of using such computing program in petrophysics is analyzed. Investigation the relations of linear, partial or multiple correlation as well as analyzing regression equations and distributions of physical parameters of rocks. Equations and graphs show calculations. 11 refs. In Polish with English abstract
DESCRIPTORS: (*GEOPHYSICS, *Rock Properties). (ROCK MECHANICS, Computer Applications). STATISTICAL METHODS.
CARD ALERT 481, 483, 502, 723, 922

616063 ID NO - E1760316063

STUDIES FOR SEISMIC ZONATION OF THE SAN FRANCISCO BAY REGION: A BRIEF SUMMARY.

Borchardt, Roger D.
US Geol Survey, Menlo Park, Calif
US Natl Conf on Earthquake Eng. Proc. Ann Arbor, Mich, Jun 18-20 1975 p 123-127. Publ by Earthquake Eng Res Inst., Oakland, Calif, 1975
Studies to date indicate the feasibility of zoning the area using existing geological and geophysical knowledge. Basic tools derived for seismic zonation on a regional scale are a map showing active faults, data on attenuation of bedrock

showing with distance, geologic data, a map showing qualitative ground response, a map showing potential liquefaction by tsunamis, a map showing liquefaction potential, and a map showing landslide susceptibility. A composite application of these seven basic tools to an earthquake along the San Andreas fault, and to help identify the nature and severity of problems in the various areas, are included.
DESCRIPTORS: (*EARTHQUAKES, *San Francisco Bay). (GEOPHYSICS, GEOLOGY, PROBABILITY, SOIL MECHANICS).
IDENTIFIERS: SEISMIC ZONING, SEISMIC RISK
CARD ALERT 484, 481, 922, 483, 408, 405

616051 ID NO - E1760316051

SURVEY OF THE 1ST FEBRUARY 1974 IZNIR (TURKEY) EARTHQUAKE.

Karakesmen, Erhan
Black Sea Tech Univ, Ankara, Turk
Symp on Earthquake Eng, 5th, Pap and Discuss, Univ of Roorkee, India, Nov 9-11 1974 v 1 p 339-350. Publ by Sarita Prakashan, Nauchandi, India, 1974

Records were obtained from two seismoscopes located in alluvial zone and in volcanic zone. Measurements of relative displacement, velocity and maximum spectral acceleration taken on alluvial soil were twice higher than measurements on bedrock. The structural damages observed in alluvial field zones were much heavier than damages observed in volcanic rock zones. A statistical study has been made for reinforced buildings in the immediate vicinities of the seismoscopes. The buildings located near the coast seemed to be affected most violently by the earthquake. A structural analysis of a building which collapsed due to ground floor columns has been made. 7 refs.

DESCRIPTORS: (*EARTHQUAKES, *Izmir, Turkey). (STRUCTURAL ANALYSIS, Earthquake Resistance). SOIL MECHANICS. (BUILDINGS, Earthquake Resistance).
IDENTIFIERS: GROUND MOTION, ALLUVIAL SOIL
CARD ALERT 484, 943, 483, 402, 931

616049 ID NO. - E1760316049
DYNAMICS OF PROGRESSIVE FRACTURING AND SPATIAL DEVELOPMENT
IN THE SOURCE REGION OF THE KOYNA EARTHQUAKES AND ENERGY
DENSITY.

Gosavi, P. D.; Padale, J. G.; Marwadi, S. C.; Guha, S. K.
Cent Water and Power Res Stn, Poona, India
Symposium on Earthquake Eng., 5th, Pap and Discuss., Univ of
Roorkee, India, Nov 9-11 1974 v 1 p 415-420. Publ by Sarita
Prakashan, Nauchandi, India, 1974

Continuous monitoring of the Koyna earthquakes (1964 \$FM\$
DASH 69) with a closely spaced net of observatories equipped
with highly sensitive and precision instruments afforded
unique opportunity of assessing the detailed characteristics
of the source region of these earthquakes and its three
dimensional development (active volume) in respect of space
and time. The statistical relation suggested by C. Kisslinger
(1968) for Matsushiro earthquakes is also found to broadly
hold good for energy density of the Koyna earthquake source.
It was found, in addition, that monthly energy densities were
significant. The instrumental studies throw significant light
on the dynamics of progressive fracturing of the rock mass
subjected to overall geotectonic stress field and ultimately
on the processes leading to gradual stability in the source
region. 6 refs.

DESCRIPTORS: (*EARTHQUAKES, *India), SEISMIC WAVES, ROCK
MECHANICS.
CARD ALERT: 484, 483, 481, 931, 943

609665 ID NO. - E1760209665
OBSERVATION OF CRACKS PROPAGATING IN ROCK PLATES.

Swan, G.
Int J Rock Mech Min Sci Geomech Abstr v 12 n 11 Nov 1975 p
329-334 CODEN: IJRCBG

A velocity gauge technique applied to the measurement of
crack propagation velocities is described. The problem of the
observer's resolution is critically examined. The results
obtained using the technique are inconclusive. It is
suggested that if, as a result of further work, a multi-crack
coalescence process is a better description of the fracture,
then a statistical method incorporated within existing
fracture mechanics theory could be useful for the purposes of
predicting crack path trajectories. Data are presented in
graphical and tabular form. 15 refs.

DESCRIPTORS: *FRACTURE MECHANICS, (MATERIALS, Crack
Propagation), ROCK MECHANICS, STATISTICAL METHODS.
CARD ALERT: 931, 483, 502, 922

600839 ID NO. - E1760100839
ANALYSIS OF LARGE-PANEL BUILDINGS ON STATISTICALLY
HETEROGENEOUS FOUNDATION BEDS.

Mikhnev, V. V.; Rybkin, G. B.; Sheinin, V. I.
Sci-Res Inst of Found, USSR
Soil Mech Found Eng v 12 n 2 Mar-Apr 1975 p 115-119

CODEN: SNFEAF

As model of a randomly heterogeneous foundation bed for
analysis of the structures interacting with it, a Winkler-type
modification is adopted. The authors present various points
relating to the analysis of a large-panel building on a
statistically heterogeneous foundation bed whose nonuniform
compressibility is determined by the modulus of subgrade
reaction. This modulus is formulated as a stationary random
function with normally distributed ordinates. For description
of the soil-building mechanical system, use is made of several
assumptions which have been adopted in the structural design
practice and which permit reducing the analysis of the forces
in the building to the problem of the determination of the
interaction between the soil and a beam with an equivalent
width, length, and generalized rigidity characteristics. 10
refs.

DESCRIPTORS: (*BUILDINGS, *Foundations), SOIL MECHANICS,
STRUCTURAL ANALYSIS, HETEROGENEOUS FOUNDATION BEDS, SOIL-STRUCTURE
INTERACTION
CARD ALERT: 402, 405, 483, 931

575136 ID NO. - E1751175136
INFLUENCE OF ROCK PROPERTIES VARIABILITY ON MINE OPENING
STABILITY ANALYSIS.

Pariseau, W. G.
Univ of Utah, Salt Lake City
Can Rock Mech Symp, 9th, Proc, Montreal, Que, Dec 13-15 1973
p 141-165. Publ by Dep of Energy, Mines and Resour., Mines
Branch, Ottawa, Ont, 1974

Rock in mines is seldom homogeneous and rarely exhibits
uniform properties. Variability is the rule. If the
variability is known, then it can be incorporated directly
into a stability analysis. The procedure is relatively simple
and consists of inserting a block of Monte Carlo simulation
logic into an existing finite element computer program. Three
examples are presented that illustrate the technique and the
influence of rock properties variability on mine design. These
are: a slope stability problem, a roof span problem, and a
pillar design problem. Results indicate that where safety
factors are high, variability poses no great hazard for mine
design. However, under conditions of large properties
variation and low mean factor of safety, probability of
failure may be sufficiently high to warrant reconsideration of
a proposed mine design.

DESCRIPTORS: (*MINES AND MINING, *Mathematical Models), ROCK
MECHANICS, (GEOPHYSICS, Rock Properties),
IDENTIFIERS: FINITE ELEMENT ANALYSIS
CARD ALERT: 502, 922, 483, 481, 401

562281 ID NO. - E1751069281
CREATION OF A METHODOLOGY FOR MAKING MEASUREMENTS IN SOLID ROCK.

Vinashchikov, V. S.; Blok, A. V.
 Sov Min Sci v 10 n 5 Sep-Oct 1974 p 626-630 CODEN: SNNSAT
 Systematic metrological, experimental and classification approach to the problem is aimed at eliminating past errors. Defining region of action, spatial inhomogeneity of solid rock with respect to it and with respect to wavelength opens the geoaoustics way of measurement that involves also the study of the spectral-correlational structure of sounding signals. The overall approach is statistical. 12 refs.

DESCRIPTORS: (-ROCK MECHANICS, *Measurement), (MEASUREMENTS, STANDARDS), MEASUREMENT THEORY, MATHEMATICAL STATISTICS, STATISTICAL METHODS.
 CARD ALERT: 483, 502, 943, 901, 922

569280 ID NO. - E1751069280
ZONES OF CRUSHING IN ROCK BLASTING.

Gaidukov, E. E.; Myzdrikov, Yu. A.
 All-Union Sci-Res Inst of Reinf Concr, Moscow, USSR
 Sov Min Sci v 10 n 6 Nov-Dec 1974 p 681-684 CODEN: SNNSAT
 Graphs of the distribution density of fragment size of blasted rock fragments vs the fragment size are asymmetrical or bimodal formally. This indicates that there are three (or two) combined distributions which are set by the parameters of the blasted medium and the parameters of the blast acting on the medium. If one plots the integral distribution function of the grain-size composition of the rock on logarithmic probability paper (left brackets) on which the logarithms of the dimensions of the functions x are plotted as abscissas and the cumulative frequencies as ordinates in accordance with the normal distribution $\text{psis} \sqrt{((1/p))}$ (right brackets), one gets a segmented line consisting of three (or two) straight segments with different slopes. The shape of the graphs shows that the distribution of fragment size of the blasted rock consists of three (or two) log normal distributions. Data are presented in graphical and tabular form. 7 refs.

DESCRIPTORS: (-ROCK MECHANICS, *Blasting), (Blasting, Underground), (QUARRIES AND QUARRYING, Crushing and Grinding).
 CARD ALERT: 483, 502

565960 ID NO. - E1751065960
STABILITY OF EMBANKMENT ON CLAY

Wu, Tien H.; Thayer, William B.; Lin, Sheng S.
 Ohio State Univ, Columbus
 ASCE J Geotech Eng Div v 101 n 9 Sep 1975 p 913-932
 CODEN: AJGEB6

The paper describes the failure of an embankment on clay and the investigation carried out to determine the mechanism of the failure. The slip surface passed through a thin layer of soft silty clay. Measured deformations and pore-water pressures are summarized. The shear strength of the silty

clay was measured by unconfined compression tests, triaxial tests, and simple shear tests. Stability analyses using the undrained shear strength measured by the unconfined compression test and the simple shear test give safety factors between 1.1 and 1.4. The consolidated-undrained triaxial test was found to overestimate the undrained shear strength by a considerable amount. Stability analysis using effective stress and measured by triaxial and simple shear tests also overestimate the safety factor. Probability analysis was used to evaluate the effect of the various uncertainties on the computed safety factors. 15 refs.

DESCRIPTORS: *EMBANKMENTS, CLAY, SOIL MECHANICS, (SOILS, Pore Pressure), PROBABILITY, IDENTIFIERS: SHEAR STRENGTH
 CARD ALERT: 405, 483, 922, 931

555019 ID NO. - E1750855019
COMPONENT CHARACTERISTICS OF JOINTED ROCK MASSES.

Chappell, B. A.
 Maunsell Geotech Serv, Melbourne, Aust
 Int J Rock Mech Min Sci Geomech Abstr v 12 n 4 Apr 1975 p 87-92 CODEN: IRMGBC

In order to use continuum elastic theory for analyzing a multi phase material, such as a jointed rock, certain assumptions are made. These assumptions are necessary so that the component characteristics or moduli can be combined to give the mass characteristics or moduli. When the material can be statistically represented as a continuum these assumptions often appear to be satisfied. The measured moduli from representative models are then used in the appropriate continuum theory. There are, however, many occasions where the assumptions are not satisfied and component responses must be considered separately. When the mechanisms of slip and rotation are considered as the component responses to deformation the resultant numerical analysis compares well with the results from physical models. It appears that slip associated with shear stresses and shear strength of the joint system is perhaps the major factor controlling the resultant load distribution in a discontinuum. Plates, diagrams, and equations demonstrate approach. 11 refs.

DESCRIPTORS: *ROCK MECHANICS, ELASTICITY, (MATERIALS, Physical Properties) MODELS, (MATHEMATICAL TECHNIQUES, Numerical Analysis).
 CARD ALERT: 483, 422, 901, 921

results, which have also been tabulated for C values. It has been found that equations calculated fairly closely represent experimental graphs. Analysis of the statistical model shows both qualitative and quantitative relations for deformations. Increase in strength and plasticity, and makes possible to obtain a single generalized curve for the residual deformation, valid for various types of stress state. More detailed relevant data can be found in the left double quotes Catalog of the Mechanical Properties of Rocks right double quotes by the same author. 23 refs.

DESCRIPTORS: *ROCK MECHANICS, (MATERIALS TESTING, Elasticity), (MATERIALS TESTING APPARATUS, Calibration), STATISTICAL METHODS.

CARD ALERT: 483, 423, 922

540841 ID NO. - E1750640841
FRACTAN: A COMPUTER CODE FOR ANALYSIS OF CLUSTERS DEFINED ON THE UNIT HEMISPHERE.

Shanley, R. J.; Mantel, M. A.
 Denver Min Res Cent, Colo
 US Bur Mines Inf Circ n 8671 1975, 49 p CODEN: XIMZAL
 This report presents a computer code that has been developed by the Bureau of Mines for isolating naturally occurring clusters of data plotted on the unit hemisphere and testing these clusters against a probability distribution which admits elliptical symmetry about its mean. A listing of the computer code is provided along with an example output illustrating the delineation and analysis of clusters in fracture orientations measured in a porphyry copper deposit. 8 refs.

DESCRIPTORS: *ROCK MECHANICS.
 CARD ALERT: 483, 502

536398 ID NO. - E1750636398
DER AUSBAUERFOLG MIT SCHILDUNGSBAU. Stief brackets Results of Shield Supports Construction Right brackets.

Irresberger, Hermann
 Glueckauf v 111 n 5 Mar 6 1975 p 230-233 CODEN: GLUEAU
 Statistical comparisons of other methods with shield supports technique show the superiority of the latter in resistance to failures and breakdowns. Diagrammatic illustrations prove the point. From Lectures by Stief double quotes Mine Supports and Rock Mechanics right double quotes Committee in the Ruhr, in German.
 DESCRIPTORS: (*COAL MINES AND MINING, *Roof Supports), MINING ENGINEERING.
 CARD ALERT: 503, 502, 901

540845 ID NO. - E1750640845
DETERMINATION OF ROCK DISPLACEMENTS AT THE PERIPHERY OF PREPARATORY WORKINGS AFFECTED BY MINING-OUT WORK.

Chernyav, I. L.; Burchnikov, Yu. I.; Emirov, L. A.
 Sov Min Sci v 10 n 4 Jul-Aug 1974 p 426-429 CODEN: SMNSAI
 Roof and floor rocks displacements in collieries have been graphically represented, and empirical equations searched for least discrepancy between calculated and experimental values. Exponential equations answer this need. Field data are used for a multifactorial regression analysis by a computer. Also rheological parameters have been determined this way separately for the roof and floor, and their significance assessed by the Fisher F and the Student T criterion respectively. 2 refs.

DESCRIPTORS: *ROCK MECHANICS, MINES AND MINING, MINING ENGINEERING, (GEOLOGY, Engineering), STATISTICAL METHODS.
 CARD ALERT: 438, 502, 481, 922

540844 ID NO. - E1750640844
STATISTICAL INTERPRETATION OF THE RESULTS OF STRENGTH TESTS ON ROCKS.

Movshev, R. V.
 Min Metall Inst, Aptity, USSR
 Sov Min Sci v 10 n 4 Jul-Aug 1974 p 415-419 CODEN: SMNSAI
 The loss of integrity in the weakest section of a body, allows for 2 well-founded choice of the law of distribution of the variation series of strength indices, assumed a priori that the number of cracks is sufficiently large, that cracks are independently and randomly distributed, that distribution density of crack dimensions is exponential, and that the breaking force is a linear function of the crack dimension and decreases as the crack dimension increases. These assumptions make possible to draw a histogram of distribution of empirical series of tensile strength using both the limiting law and the normal distribution law. The law of limiting distribution remains correct in the interpretation of the strength properties of rocks, with proper alterations of the quantitative parameters. 7 refs.

DESCRIPTORS: *ROCK MECHANICS, (MATERIALS TESTING, Hardness), STATISTICAL METHODS.
 CARD ALERT: 483, 423, 922

540842 ID NO. - E1750640842
STATISTICAL PRINCIPLES OF THE STRENGTH AND DEFORMATION OF ROCKS IN COMPLEX STATES OF STRESS.

Stavrogin, A. N.
 All Union Sci Res Inst of Mine Surv, Leningrad, USSR
 Sov Min Sci v 10 n 4 Jul-Aug 1974 p 393-406 CODEN: SMNSAI
 Rocks tested under nonuniform triaxial compression increase in volume. In a series of experiments over 10,000 specimens of 48 rock varieties have been tested with a special hydraulic apparatus with proportional load (HAPL) and different states of stress, and graphs respectively curves drawn showing the

CARD ALERT 483, 931

537539 ID NO - E175053539
COMMENT PREVOIR LA DEFORMATION DES MASSIFS ROCHEUX. Sleift
brackets How to Anticipate Deformation of Rock Bodies Sleift
brackets

Londe, Pierre
Bul d'ing Cons Coyne et Bellier, Fr
Ann Mines n 2-3 Feb-Mar 1975 p 37-46 CODEN: AMMSA3
The in situ rock-mass, particularly where engineering
practice is concerned (intermediate between laboratory
research and conventional geology) is not generally within the
boundaries of continuum behavior. The fact that significant
parameters are numerous and often ill-known compels the
designer to use methods for prediction behavior, which
involve, at least qualitatively, probabilistic notions. A
distinction is made between problems related to the small
deformations (at the surface or within the rock-mass) and
large deformations (destruction of the rock-mass). In French.
DESCRIPTORS *ROCK MECHANICS, PROBABILITY.
CARD ALERT 483, 502, 922

526938 ID NO - E1750426938
WAARSCHIJNLIJKEITSTHEORETISCHE BETRACHTUNGEN ZUR ERMITTLUNG
BODENMECHANISCHER KENNWERTE. Sleift brackets Considerations
on Determination of Soil-Mechanical Characteristics. Based on
the Probability Theory Sleift brackets

Oswald, Otto Georg
Ration Braunkohle, Grossraeschen-Leipzig, E Ger
Neue Bergbautech v 5 n 1 Jan 1975 p 17-21 CODEN: NEBBAB
Based on A literature review a description is given of the
present state of knowledge of the type and mode of partition
functions for soil characteristics. It is followed by a
critical evaluation and conclusions are drawn for the practice
of soil mechanics. 18 refs. In German.
DESCRIPTORS *SOIL MECHANICS, (PROBABILITY, Random Processes
I.
CARD ALERT 483, 922

530843 ID NO - E1750530843
ENGLISH AND WELSH COLLIERY SPOIL HEAPS SEM DASHES
MINERALOGICAL AND MECHANICAL INTERRELATIONSHIPS.

Taylor, R. K.
Univ of Durham, Engl
Eng Geol v 9 n 1 Mar 1975 p 39-52 CODEN: EGGDAD
Seventy-four post-failure triaxial test specimens from
fifteen colliery spoil heaps in England and Wales have been
chemically and mineralogically analyzed. Three mineral
groupings emerged from statistical correlations
clay minerals, coal and carbonates, with the coal group
showing strong inverse relationships with the clay-minerals
group. Correlation matrices of physical and mechanical
properties versus mineralogical and chemical components have
enabled the main mineralogical controls on the physical
characteristics to be recognized. 18 refs.
DESCRIPTORS (*GEOLOGY, *Engineering), SOIL MECHANICS,
MINERALOGY, COAL.
IDENTIFIERS COLLIERIES
CARD ALERT 481, 482, 483, 524, 931

529266 ID NO - E1750529266
CORRELATIONS BETWEEN PLASTICITY INDICES OF CLAYS.

Gatal, B. F.
Ind and Sci Inst for Eng Surv in Constr, Stavropol', USSR
Soil Mech Found Eng v 11 n 4 Jul-Aug 1974 p 257-258
CODEN: SMFEAF
The author has made a comprehensive check of the relation
between the plasticity indices. The initial data were
obtained at surveying about 20,000 specimens and in the
published literature. All indices given by the investigators
were used in the statistical treatment. 14 refs.
DESCRIPTORS *CLAY, SOIL MECHANICS, PLASTICITY,
IDENTIFIERS PLASTICITY INDICES

520864 ID NO. - E1750320864
PROBABILITY OF PILLAR FAILURE AT ELLIOT LAKE.

Coates, D. F.
Int Soc for Rock Mech. 3rd Congr. Proc. Pap. Denver, Colo.
Sep 1-7 1974 v 2, Part B, p 990-996. Available from NAS,
Washington, DC, 1974

It is not possible to design pillars in the same way that columns are designed for buildings because of the difficulty in predicting stresses and strengths. Furthermore, it is desirable in practical mine design to take into account the dispersion of stress and strength about their mean values, which cannot be done rationally using the traditional safety factor approach. The dispersion of stress in pillars comes from the variations in slope geometry, from irregular mining boundaries, and from variations in the deformability and strength of the rock substance, aside from any obvious gross geological variations. In three stopes at one of the mines at Elliot Lake, the mean stress is 10,600 psi with a coefficient of variation of 26% (of the high-side tail). The strength of pillars is difficult to determine. The dispersion of the strength of pillars is shown to arise from the variation in the properties of the constituent rock substance, again aside from the effects of any gross geological features. The mean stress seems to be about 18,000 psi (124 MN/m²) at Elliot Lake. The coefficient of variation looks to be in the range of 15-25%. A survey of pillar failures in various mines was shown to compare favorably with calculated probabilities of failure. 8 refs.

DESCRIPTORS: (URANIUM MINES AND MINING. *Roof Supports).
ROCK MECHANICS. (MINING ENGINEERING, Ontario).
CARD ALERT 482, 502, 504, 901

520818 ID NO. - E1750320818

PROBABILISTIC APPROACH TO GEOLOGIC INVESTIGATIONS FOR HARD-ROCK TUNNELS.

Vick, Steven G.
Onnes and Moore, Salt Lake City, Utah
Int Soc for Rock Mech. 3rd Congr. Proc. Pap. Denver, Colo.
Sep 1-7 1974 v 2, Part B, p 1069-1075. Available from NAS,
Washington, DC, 1974

An approach is presented that permits specification of uncertainties in the prediction of geologic conditions along a tunnel alignment. Geologic uncertainties can be systematically described with the presented segmentation and decision tree structure. The use of probabilistic specifications of uncertainty permit the evaluation of alternative excavation or support methods on the basis of expected cost. A particular advantage of the approach is the possibility of comparing the adaptability of different construction methods to variations in geologic conditions. 4 refs.

DESCRIPTORS: (TUNNELS. *Construction). ROCK MECHANICS. (GEOLOGY, Engineering). PROBABILITY.
CARD ALERT 401, 405, 481, 482, 502, 922

512400 ID NO. - E1750319490

METHODS FOR DETERMINING THE AVERAGE DYNAMIC ELASTIC PROPERTIES OF A FRACTURED ROCK MASS AND THE VARIATIONS OF THESE PROPERTIES NEAR EXCAVATIONS.

Bernabini, M.; Borelli, G. B.
Univ of Rom., Italy
Int Soc for Rock Mech. 3rd Congr. Proc. Pap. Denver, Colo.
Sep 1-7 1974 v 2, Part A, p 393-397. Available from NAS,
Washington, DC, 1974

Some techniques and methods for determining the average dynamic elastic properties of a rock mass, through velocity measurements between pairs of holes, are described. The measurements must be as numerous and differently oriented as possible. To obtain characteristic values of the average elastic properties and of the nonhomogeneity of the rock statistical methods are used. The seismic refraction method with geophones spaced 0.5-2 m apart is suggested for determining the variation of elastic properties near the excavation surfaces. The suggested method has given good results. Some examples are reported. 4 refs.

DESCRIPTORS: (ROCK MECHANICS. *Research). (TUNNELS. Stresses). (GEOPHYSICS, Seismic).
CARD ALERT 401, 481, 482, 502, 912

519471 ID NO - E1750319471
DESIGN OF ROCK SLOPES AGAINST SLIDING ON PRE-EXISTING FRACTURES.

McMahon, Barry K.
 Int Soc for Rock Mech, 3rd Congr, Proc, Pap, Denver, Colo, Sep 1-7 1974 v 2, Part B, p 803-808. Available from NAS, Washington, DC, 197

Procedures are presented for the design of slopes in rock of sufficient strength that failure will take place mainly by sliding along rock fractures, and that failure through the rock substance will be restricted to the relatively highly stressed region near the toe of the slope. A single parameter, the critical dip, is introduced to combine the effects of shear strength, groundwater forces, earthquake forces, and geometry of the slide mass. Blocks resting on fractures inclined at angles less than the critical dip are then stable for all orientations. Fracture orientations are then analyzed statistically to evaluate the probability of fractures, slope undercutting a fracture, or combination of fractures, dipping out of the slope at angles greater than the critical dip. The probability of failure is then obtained by multiplying the probability of the fractures having unstable orientations by the probability that the maximum lengths of the fractures are sufficient to allow failure. The statistics of fracture lengths are treated as an application of the theory of Extreme Values. The optimum design slope is selected as the slope at which the estimated total present value of the costs of waste excavation, landslide repair, and lost production are a minimum. 7 refs.

DESCRIPTORS: ROCK MECHANICS, (GEOLOGY, Tectonics).
 IDENTIFIERS: SLOPE STABILIZATION, LANDSLIDE PREVENTION
 CARD ALERT 481, 482, 502

518097 ID NO - E1750318097
MECHANISM OF CAVING OF LONGWALL FACES.

Singh, T. N., Singh, B.
 Cent Min Res Stn, Dhanbad, India
 J Mines Met Fuels v 22 n 7 Jul 1974 p 1890-195. 198-201
 CODEN JMINFAM

Positive anticipation of the ability of the roof strata to cave-in through very vital is still at an early stage of development. Different empirical and statistical approaches are being developed in many countries. Under the program of the development of equivalent material mine models, simulation of caving characteristic is one of the basic requirements. The model investigations revealed the influence of layer thickness, their rigidity, cohesion and other physicochemical properties on caving characteristic of roof rocks. On the basis of these investigations conducted at the C. M. R. S. (Central Mining Research Station), a method is proposed to anticipate the caving behavior of any roof strata. 26 refs.

DESCRIPTORS: (MINES AND MINING, Roof Control), (COAL MINES AND MINING, Roof Control), (ROCK MECHANICS, Research).
 IDENTIFIERS: LONGWALL MINING, ROOF CAVING
 CARD ALERT 482, 502, 503, 912

517003 ID NO - E1750317003
RESULT OF STATE-OF-STRESS MEASUREMENTS IN DIFFERENT TYPES OF ROCK MASSES.

Martinetti, S.; Ribacchi, R.
 Ital State Electr Board, Italy
 Int Soc for Rock Mech, 3rd Congr, Proc, Pap, Denver, Colo, Sep 1-7 1974 v 2, Part A, p 458-463. Available from NAS, Washington, DC, 197

Results of 161 double quotes in situ 161 double quotes measurements of stresses in rock masses that were enveloping underground caverns for hydroelectric power plants at six different locations with the purpose of determining the natural state of stress through the utilization of the CSIR 161 double quotes doorstopper 161 double quotes method are exposed. The paper also describes the criteria, based upon statistical models, which are applied in the interpretation of the results, the difficulties met in the practical execution of measurements, as well as the proposed improvements. 13 refs.

DESCRIPTORS: (HYDROELECTRIC POWER PLANTS, Underground).
 ROCK MECHANICS, STRAIN GAGES,
 CARD ALERT 422, 482, 502, 611, 943

514951 ID NO. E175013951
MICROMECHANICS MODEL FOR CREEP OF ANISOTROPIC CLAY
 Bazant, Zdenek P.; Ozaydin, I. Kutay; Krizek, Raymond J.
 Northwest Univ., Evanston, Ill.
 ASCE J. Eng. Mech. Div. v 101 n 1 Feb 1975 p 57-78 CODEN
 JNCEA3

Clays frequently possess a fabric with a preferred particle orientation and the creep properties of such clays are therefore anisotropic. A two-dimensional microstructural model to describe this creep response is developed. The model is based on a triangular cell of three particles sliding over each other at a rate predicted by rate-process theory. Equating the rate of energy dissipation within the cell to that of the macroscopic continuum leads to the determination of the tangential viscosity matrix and the matrix of the nonviscous stress components, both of which are stress dependent. The anisotropic creep viscosity parameters then are obtained by a statistical averaging procedure based on the probability density of the particle orientation distribution, as determined by x-ray diffraction. The resulting model is able to predict the directional differences in the creep rate and the stress dependence of creep in clays with anisotropic fabric. Undrained creep tests were conducted on specimens cut in various directions from both isotropically and anisotropically consolidated kaolinite samples. 16 refs.
 DESCRIPTORS: *CLAY, (MATERIALS, Creep), SOIL MECHANICS.
 IDENTIFIERS: ANISOTROPY
 CARD ALERT: 483, 931

505363 ID NO. E1750105363
INVESTIGATIONS OF THE RELATIONS AMONG RESIDUAL STRAIN, FABRIC, FRACTURE AND ULTRASONIC ATTENUATION AND VELOCITY IN ROCKS.

Friedman, M.; Bur, I. R.
 Tex A & M Univ., College Station
 Int. J. Rock Mech. Min. Sci. Geomech. Abstr. v 11 n 6 Jun 1974 p 221-234 CODEN: IJRMGB

Residual strain measured by x-ray diffractometry, fabric, and ultrasonic velocity and attenuation in blocks of dry Charcoal Granite, Sioux Quartzite, and Berea Sandstone are investigated to determine their causes and effects and the degree to which each can be used to predict fracture anisotropy. The statistical trends of tensile fractures, induced by point-loading oriented discs, are reliably predicted from ultrasonic data in all three rocks; the attenuation data reflect some not sensitive to velocity. Ultrasonic data for the bedded rocks do not correlate with any of the microscopic fabric elements studied. The tendency for tensile fractures in the sandstone and quartzite to propagate along grain boundaries more so than for the granite suggests minute openings or flaws may exist at the boundaries and these may predominantly influence fracturing and acoustic properties. 13 refs.

DESCRIPTORS: (*ROCK MECHANICS, *Ultrasonic Applications), (GEOPHYSICS, Rock Properties).
 CARD ALERT: 481, 482, 502, 753

57555 ID NO. E1750105355
RELATIONSHIPS BETWEEN SOME PHYSICAL PROPERTIES OF ROCK DETERMINED BY LABORATORY TESTS
 Szlavins, J.

Min. Res. and Dev. Establish., Staffs., Eng.
 Int. J. Rock Mech. Min. Sci. Geomech. Abstr. v 11 n 2 Feb 1974 p 57-65 CODEN: IJRMGB

This report is concerned with a statistical survey of the results obtained from tests on samples of rock during a 5-yr period from 1965-1970. Good correlations were found between the straightforward mechanical properties, i.e., strength and hardness, and it was proved that it is possible, within reasonable limits, to make an assessment of the properties of a rock by estimation from any of the simple 'standard' tests. However, the correlations were generally not as good between the mechanical and energy properties, which suggests that the 'cuttability' of rock should be considered as an independent property and established separately by tests. Formulae and nomograms are provided from which the individual properties considered in the analyses can be estimated from any other property. Details of the limitations and errors involved in the analyses are also given. The NCR Cone Indenter was shown to be a good field instrument giving results which can be correlated with the other properties; it could be used for making rapid assessments of the rock encountered in site surveys. 4 refs.

DESCRIPTORS: (*ROCK MECHANICS, *Research), ROCK DRILLING, (MATERIALS TESTING, Hardness).
 CARD ALERT: 405, 421, 422, 482, 502, 912

476232 ID NO - E1741276012
PRESENT POSSIBILITIES OF STUDYING FOUNDATIONS OF CONCRETE DAMS.

Rocha, Manuel
 Lisbon Tech Univ, Port
 Int Soc for Rock Mech, 3rd Congr, Proc, Pap, Denver, Colo, Sep 1-7 1974 v 1, Part A, p 879-897. Available from NAS, Washington, DC, 197

The paper presents the methods thought advisable for characterizing foundation rock masses of concrete dams, the procedures to be followed and how to express the results for their application in the design. The problem of characterizing the structure of rock masses, particularly the fracturing, is dealt with first, the important roles of geophysical methods in the first stage of characterization, and of integral sampling in the final stage, being emphasized. Deformability is considered in Chapter 3, which, after a discussion of the sensitivity of concrete dams to changes in the modulus of deformability of the foundations, presents the principles advisable for characterizing rock masses, the procedure recommended - especially the slot test which allows the characterization of large undisturbed volumes, and the dilatometer test, and finally discusses in detail the interpretation of the results of in-situ tests. As regards the strength of the foundations, the mechanisms of rupture and the concept of safety are discussed, and adequate testing procedures considering the scale effect are dealt with. The problem of strength characterization, especially by statistical methods, is also discussed. Finally the advantage of knowing the initial state of stresses in rock masses is indicated. 18 refs.

DESCRIPTORS: (DAMS, GRAVITY, Foundations), (FOUNDATIONS, Bearing Capacity), ROCK MECHANICS.
 CARD ALERT: 405, 408, 441, 482, 502

475688 ID NO - E1741275688
APPLICATIONS OF ROCK MECHANICS IN DEEP COAL MINES OF WEST GERMANY.

Everling, G.
 Bergbau Forsch, Essen, Ger
 Int Soc for Rock Mech, 3rd Congr, Proc, Pap, Denver, Colo, Sep 1-7 1974 v 1 Part B, p 1441-1450. Available from NAS, Washington, DC, 1974

In the West German Coal Mining Industry the laws of Rock Mechanics are studied and applied in a simple, elementary and practical manner. This report gives some examples which may be regarded as supplements and as a corroboration and realization of many details of the results derived in the General Report. The redistribution of stresses in the rock mass around longwall workings can be predicted by means of a computer program which permits the consideration of irregular workings in up to four seams. The effects of rock pressure on gateroads and longwall faces are observed underground by simple readings and measurements, and analyzed statistically. Comparisons between the calculated stresses and the effects of pressure observed underground proved significant correlations

that enable one to predict the behavior of roof, floor and walls in gateroads and at the face as well. These results confirm that in underground mining not only scientific theories but also empirical investigations may lead to useful conclusions and both methods will complement each other efficiently. 4 refs.

DESCRIPTORS: (COAL MINES AND MINING, West Germany), ROCK MECHANICS, (MINING ENGINEERING, Research), IDENTIFIERS LONGWALL MINING
 CARD ALERT: 482, 502, 503, 901, 961

471599 ID NO - E1741171599
ADVANCES IN HARD ROCK MINING SEM DASHES ACHIEVEMENTS AND EXPECTATIONS.

Janellid, Ingvar
 R Tech High Sch, Stockholm, Swed
 World Min v 27 n 10 Sep 1974 p 60-63 CODEN: WDMIAI
 Paper analyzes the importance of rock excavation in world wide, underground and surface mining of ores and industrial minerals. The pertinent statistics show that the ratios of the volume of rock excavated in underground and surface mining to the volume of ore were 1 to 5 and 1 to 1.1 respectively. Impact of rock excavation on the total costs of mining necessitates intensive research and development work in areas of: drilling; drifting and raising; rock drills; blasting; loading and transportation; as well as in rock mechanics. Recent Scandinavian achievements are reviewed.
 DESCRIPTORS: (MINES AND MINING, Operations Research), ROCK MECHANICS, (MINING ENGINEERING, Research).
 CARD ALERT: 482, 502, 901, 912

462688 ID NO - E1741062688
HOW ROCK STRENGTH IN THE KUZBASS DEPENDS ON GEOLOGICAL AND PHYSICAL CHARACTERISTICS.

Stankus, V. M.; Izakson, V. Yu.; Nemshova, R. I.; Nemov, V. I.
 Kuzbass Polytech Inst, USSR
 Sov Min Sci v 9 n 5 Sep-Oct 1973 p 483-486 CODEN: SMNSAT
 Paper presents the results of a lithological and rock mechanical investigation of the sedimentary rock strata that occur in the Kuzbass (Soviet Union) coal field. Median data have been determined by means of mathematical, statistical methods. 2 refs.
 DESCRIPTORS: (GEOLOGY, Coal), ROCK MECHANICS, STATISTICAL METHODS.
 CARD ALERT: 481, 482, 502, 503, 922

461722 ID NO. - E1741061722
**PROBABILITY OF EARTHQUAKE OCCURRENCE ESTIMATED FROM RESULTS
 OF ROCK FRACTURE EXPERIMENTS.**

Inagiwara, Yukio
 Univ of Tokyo, Jpn
 Tectonophysics v 23 n 1-2 Jul 1974 p 99-103 CODEN: TCTOAM
 The hazard rate, the number of fracture occurrences per unit
 time, which has been obtained from laboratory experiments of
 rock fracture, is obtained for the earth's crust by analyzing
 the statistical distribution of geotectonically-observed ultimate
 strain. The associated hazard function has two coefficients,
 A and B, to be determined. Comparison of the coefficients
 obtained by the results of rock-fracture experiments with the
 geotectonically determined ones discloses that B is independent
 of the size-effect. It is therefore concluded that, if A is
 estimated from the statistics of the geotectonically observed
 ultimate strain and B is obtained from fracture experiments of
 rock forming a local part of the crust, the probability of a
 local large-scale earthquake occurrence can be estimated. 2
 refs.

DESCRIPTORS: (*EARTHQUAKES, *Mathematical Models), ROCK
 MECHANICS, PROBABILITY.
 CARD ALERT: 482, 484, 502, 922

458649 ID NO. - E1740958649
STATISTICAL APPROACH TO SETTLEMENT PREDICTION.

Matsuuo, Minoru; Asaoka, Akira
 Proc Jap Soc Civ Eng n 255 May 1974 p 63-74 CODEN: OGRHAD
 15 refs. In Japanese.

DESCRIPTORS: *SOIL MECHANICS, (FOUNDATIONS, Settlement),
 STATISTICAL METHODS.
 CARD ALERT: 405, 483, 922, 931

453712 ID NO. - E1740953712

**KONTROLA STABILNOSCI CHODNIKOW KOTWIONYCH. sleft brackets
 Controlling the Stability of Roadways Supported by Rock
 Bolting Right brackets**

Bachacou, J.; Raffoux, J F.; Dudek, J.; Magron, A.
 Polytech Wroclaw, Pol
 Przegl Gorn v 30 n 1 Jan 1974 p 47-56 CODEN: PRGNAL
 Two-part paper discusses the typical forms of the
 roof-failure in roadways and techniques for prevention by
 means of rock bolts. Methods for monitoring the proper action
 of the slit-end bolts and criteria of roof-failure hazards are
 examined. In part-2 statistical data pertinent to the
 application of rock bolts in the coal mines of the Lorraine,
 France region is given. Monitoring system that consists of
 measuring the stress relief in roof strata and rate of
 conveyance of the roof and the floor in regular time intervals
 as well as of computerizing these data is described. Computer
 is programmed to signal sleft double quotes critical sright
 double quotes spots. In Polish.

DESCRIPTORS: (*COAL MINES AND MINING, *Roadway Supports),
 ROCK MECHANICS, (DATA PROCESSING, Natural Sciences

Applications),
 IDENTIFIERS: ROCK BOLTS
 CARD ALERT: 482, 502, 503, 723

445439 ID NO. - E1740745439
TUNNELING MACHINE RESEARCH.

Rad, Parviz F.; Olson, Richard C.
 Twin Cities Min Res Cent, Minn
 US Bur Mines Rep Invest RI 7882 1974, 40 p CODEN: XBMIAG
 The Bureau of Mines used a linear cutting apparatus equipped
 with a 7-inch disk cutter to cut grooves in marble, limestone,
 granite, and quartzite under a normal force of 7,000 lb. The
 size distribution of the muck for various grooves was
 determined through sieve analysis. A statistical search showed
 that Weibull distribution describes the size distribution
 better than other available functions. Results indicate that
 fineness modulus, chip population, and dimension of the
 largest chip can be used as indicators of cutting efficiency.
 The results correlate with those obtained from the boring
 machines and other lab experiments. Application of the
 principles established through this work to the operation of
 boring machines is explained. 10 refs.

DESCRIPTORS: (*TUNNELS, *Construction), ROCK MECHANICS, (
 CUTTING TOOLS, Carbide).
 IDENTIFIERS: TUNNEL BORING MACHINES, ROCK CUTTING
 CARD ALERT: 401, 405, 482, 502, 603

441103 ID NO. E1740741103
TEMPORARY AND PERMANENT EARTH ANCHORS: THREE MONITORED INSTALLATIONS.

Tron, William A.
 William Iron Assoc Ltd, Rexdale, Ont.
 Can Geotech J v 11 n 2 May 1974 p 257-268 CODEN: CGJQAH
 This paper presents the results of measurements of earth anchor performance for three separate installations in Metropolitan Toronto. The first case records the results of instrumentation on the high grout pressure Bauer anchor used to support an approximately 30 ft (9.1 m) deep excavation in dense fine sand. The second presents the load measurements made on low grout pressure earth anchors installed in very stiff clay of a 29 ft (8.8 m) excavation. The third installation involved measurements on permanent vertical anchors set in extremely dense silt till. In the first instance, the average measured load was somewhat lower than the installing load and the design assumption. In the second case, in the stiff clay, the load was somewhat higher than the design value but this was attributed to the probability of load transfer because of inadequate support at lower levels. In this case, considerable variation and possible overstressing of anchor wires was noted. A very high uplift resistance was recorded for the permanent anchors in dense till. Control of groundwater during installation of these anchors was the principal lesson learned from this work.
 refs.
 DESCRIPTORS: (*FOUNDATIONS, *Anchorage), SOIL MECHANICS,
 IDENTIFIERS: EARTH ANCHORS
 CARD ALERT 405, 483

436724 ID NO. E1740636724
STATISTICAL COMPARISON OF THE PULSE AND RESONANCE METHODS FOR DETERMINING ELASTIC MODULI.

Hill, Richard E.; Peng, Syd S.
 Twin Cities Min Res Cent, Minneapolis, Minn
 US Bur Mines Rep Invest n 7831 1974, 24 p CODEN: XBMTA6
 Elastic wave velocities and moduli were determined by both the pulse and resonance methods in a large number of specimens of St. Cloud Gray Granodiorite and Tennessee marble under the same moisture, temperature, and stress environment. Long cylinders were first tested by the resonance method to obtain longitudinal bar and torsional wave velocity. The cylinders were then sectioned in half and tested by the pulse method to obtain the transient pulse velocity. These velocities were later used to obtain various moduli for comparison. 50 refs.
 DESCRIPTORS: *ROCK MECHANICS,
 CARD ALERT 482, 502

429862 ID NO. E1740529862
UNCERTAINTY, SAFETY, AND DECISION IN SOIL ENGINEERING.

Mo, Fien H.
 Ohio State Univ, Columbus
 ASCE J Geotech Eng Div v 100 n GT3 Mar 1974 Pap 10434 P

329 348 CODEN: AUGEB6
 Probability and decision theory are used to solve the decision problems in subsoil exploration, design of a foundation on clay, and design of inaccuracies in measurement of uncertainties that arise out of natural soil deposits are soil strength and variability of design and decision process is considered and a model for the available information, the experience, and the costs of investigation and failure. 36 refs.
 DESCRIPTORS: (*SOILS, *Surveys), SOIL MECHANICS, (FOUNDATIONS, Settlement), CLAY, SAND AND GRAVEL, PROBABILITY,
 IDENTIFIERS: DECISION THEORY
 CARD ALERT 405, 483, 922, 931

429301 ID NO. E1740529301
PROBABILISTIC ANALYSIS AND DESIGN OF A RETAINING WALL.

Iliescu, Karel; Murarka, Ramesh P.
 Stanford Univ, Calif
 ASCE J Geotech Eng Div v 100 n GT3 Mar 1974 Pap 10436 P
 349-366 CODEN: AUGEB6
 The procedure is illustrated by analyzing and designing a gravity retaining wall first by conventional, deterministic procedures, and subsequently, by a probabilistic approach. The term safety margin is introduced and defined as the difference between resistance and load, both random variables. It is pointed out that the probability of failure does not depend on the mean value of the safety margin, but on the coefficient of variation. 26 refs.
 DESCRIPTORS: *RETAINING WALLS, SOIL MECHANICS, STATISTICAL METHODS, PROBABILITY,
 IDENTIFIERS: SAFETY FACTOR
 CARD ALERT 405, 483, 922, 931

427960 ID NO. - E1740527960
SEISMOAKUSTISCHE UNTERSUCHUNGEN ZUR VORHERSAGE VON GEBIRGSSCHLAGEN **Left brackets Seismoacoustic Investigations for Forecasting of Rock Bursts** **Left brackets**
 Simone, J.; Sklenar, J.; Hembernigg, H.; Kostelka, L.; Rainer, H.
 Czech Acad of Sci, Holesovick
 Berg Huetteannaern Monatsb v 118 n 12 Dec 1973 p 375-384
 CODEN BHMMAM

Paper outlines the importance of the rock burst hazard in mines, tunnels etc from the viewpoint of accident prevention and economics of mining operations as well as brings into focus the accompanying seismic and acoustic phenomena. The investigated lead-zinc deposit **Left double quote** Bleiberg **Right double quote** is located on the Austrian Yugoslav border in the triassic formation known under the name **Left double quote** Kalkalpen **Right double quote** (calcareous Alps) and is characterized by very frequent occurrences of rock bursts. (Statistics for the period 1960-1972 are enclosed). Classification of rock burst proneness of various rocks based on SEM DASH stress dependent-frequency of impulses is presented as well as the application of the seismoacoustic method for determining the hazard of a rock burst is described. Evaluation of the seismoacoustic soundings is outlined. 15 refs. In German.

DESCRIPTORS: (-MINES AND MINING, *Rock Bursts), (GEOPHYSICS, Seismic), ROCK MECHANICS.
 IDENTIFIERS: LEAD ZINC MINES AND MINING AUSTRIA
 CARD ALERT: 481, 482, 484, 502

427957 ID NO. - E1740527957
ROCK MECHANICS AND RISK IN OPEN PIT MINING

Pariseau, William G.
 Univ of Utah, Salt Lake City
 Int Symp on Comput Appl in the Miner Ind, 11th, Proc, Tucson, Ariz, Apr 16-20 1973 v 1, Sect A, p 106-124. Available from Univ of Ariz, Coll of Mines, Tucson, 1973
 It is difficult and rather hazardous to generalize about slope stability except in the broadest of terms. Material properties, applied loads, geologic features, and ground water are major components of stability analyses regardless of the mathematical model used to calculate stresses, deformation and displacements. Other factors such as vibration and blasting will also affect slope stability. In all these there is variability and uncertainty that affect the risks and reward anticipated in mine planning for open pit mines. While rewards are relatively simple to compute through present value analysis risks are not. The incorporation of a Monte Carlo simulator into a finite element computer program that is capable of modeling progressive slope failure as presented in this paper provides a direct method of coping with uncertainties arising from variability in measured stability parameters such as rock strength. An almost unlimited number of material types of arbitrary distribution can be employed without added computer storage, provided the random number generator in the Monte Carlo simulator can be

main to repeat sequences. 27 refs.
 DESCRIPTORS: (-MINES AND MINING, *Open Pit), ROCK MECHANICS, MATHEMATICAL STATISTICS, Monte Carlo Methods).
 IDENTIFIERS: SLOPE STABILITY
 CARD ALERT: 482, 502, 922

422808 ID NO. - E1740422808
VAZKE TECENI ZEMIN. Left brackets Creep of Soils **Right brackets**

Feda, Jaroslav
 Stavebnicky Cas v 21 n 10 1973 p 732-756 CODEN: STVCA2
 An example of two types of a creep test is shown. The paper describes a structural concept based on H. Eyring's kinetic theory. Creep is shown to be a thermally-activated process which may be described in terms of statistical thermodynamics. The principal propositions of this theory are explained and the connection of various relationships with the phenomenological relationship is discussed. A kinetic theory of strength of solids was developed. 35 refs. In Slovak.
 DESCRIPTORS: (-SOILS, *Creep), SOIL MECHANICS, THERMODYNAMICS.
 IDENTIFIERS: KINETIC THEORY OF SOLIDS
 CARD ALERT: 483, 641, 931

422800 ID NO. - E1740422800
STATISTISCHE FESTIGKEITS- UND VERFORMUNGSANALYSEN DES UNTERGRUNDES. Left brackets Statistical Analysis of Stability, Compactness and Deformation of Subgrades **Right brackets**

Brandt, H.
 OIAV, Vienna, Austria
 Osterr Ing-Z v 16 n 12 Dec 1973 p 398-403 CODEN: OSIZAN
 In German.
 DESCRIPTORS: *SOIL MECHANICS, (FOUNDATIONS, Piles), ROCK MECHANICS, STATISTICAL METHODS.
 IDENTIFIERS: SUBGRADES, DEFORMATION
 CARD ALERT: 405, 483, 922, 931

42342 ID NO. E1740120112
STRESS STATE OF ROCKS AT THE ACTUAL BOUNDARY OF A MINE WORKING.

Shimin, V. I.
 Sci-Res Inst of Found Beds and Underground Constr., USSR
 Soil Mech Found Eng v 10 n 4 Jul-Aug 1973 p 284-289
 CODEN SMFEAR

A solution of the problem was obtained for a nonhydrostatic initial stress state in the rock mass, and formulas derived for computing the statistical characteristics of the stresses. From analyzing the result of this solution, made by considering the actual relations of irregularities and assigned boundaries, recommendations are offered for an approximate determination of the stresses with a designed noncircular outline.

DESCRIPTORS: *ROCK MECHANICS, MINES AND MINING, MATHEMATICAL MODELS.
 CARD ALERT 483, 502, 922

415447 ID NO. E1740315447
COMPUTER CLASSIFICATION OF RESERVOIR SANDSTONES.

Haralick, R. M.; Shanmugam, K.
 Univ of Kans Cent for Res Inc, Lawrence
 IEEE Trans Geosci Electron v GE-11 n 4 Oct 1973 p 171-177
 CODEN IFEQAN

A procedure is developed to extract numerical features which characterize the pore structure of reservoir rocks. The procedure is based on a set of descriptors which give a statistical description of porous media. These features are evaluated from digitized photomicrographs of reservoir rocks and they characterize the rock grain structure in terms of (1) the linear dependency of gray tones in the photomicrograph image, (2) the degree of left double quotes homogeneity variations of the image gray tone dependencies. On the basis of these textural features, a simple identification rule using piecewise linear discriminant functions is developed for categorizing the photomicrograph images. The procedure was applied to a set of 243 distinct images comprising 6 distinct rock categories. The coefficients of the discriminant functions were obtained using 143 training samples. The remaining 100 samples were then processed, each sample being assigned to one of 6 possible sandstone categories. Eighty-nine per cent of the test samples were correctly identified in refs.

DESCRIPTORS: (*RESERVOIRS, *Rock Mechanics), ROCK MECHANICS, COMPUTERS, DIGITAL.
 CARD ALERT 441, 483, 722

CODEN LIRMA2

Intensive rock mechanics research concerned with introducing new technology into mine design has been conducted during the past few years at the Elliot Lake Laboratory of the Mines Branch. The measurement of pillar stresses has been an important element of this work. The variation obtained in these measurements makes it difficult to use the design concept of safety factor (relating average strength to average stress). On the other hand, the explicit use of measurements of variability for design analysis is particularly appropriate in mining. Selection of failure probability can then take into account the consequences of instability, and the economics of failure can be introduced into financial analysis. It was found that the total coefficient of variation of the measured pillar stresses is 22 per cent. The calculated contribution to the total coefficient of variation from irregularities in the slope geometry is 18 per cent, the effect of irregular mining boundaries by itself is the source of an additional 18 per cent, and the variability of the stiffness of the rock substance could produce another 22 per cent. These sources of variability are more than adequate to explain the measured variance, which must be now considered real and not the product of measurement error. 10 refs.

DESCRIPTORS: (*MINES AND MINING, *Roof Supports), ROCK MECHANICS, (STRESSES, Measurement).
 CARD ALERT: 408, 421, 482, 502, 504

404856 ID NO. E1740104856

DEFLECTION OF BURIED PIPES.

Watkins, Reynold K.; Smith, Albert B.
 Utah State Univ Logan
 J Am Water Works Assoc v 65 n 9 Part 1 Sep 1973 p 588-593
 CODEN JAWWA5

The research to improve methods of predicting ring deflection of buried, large-diam pipes subjected to external soil pressure. A simple relationship was found between ring deflection, the predicted vertical soil strain, and the stiffness ratio, which generally confirms theory but is reported to be simpler, more accurate, and establish statistical confidence levels.

DESCRIPTORS: (*WATER PIPELINES, *Management), SOIL MECHANICS

IDENTIFIERS: DEFLECTION, BURIED PIPES
 (CARD ALERT: 446, 483, 619)

408198 ID NO. E1740208198

VARIANCE OF PILLAR STRESSES AT ELLIOT LAKE.

Coates, D. F.
 Min Res Cent, Ottawa, Ont
 Int J Rock Mech Min Sci v 10 n 6 Nov 1973 p 627-640

401014 ID NO. - E17-101014194
ACCEPTANCE SPECIFICATION OF COMPACTED SOILS.
 Kraft, Leland M. Jr.; Young, Jimmy Yew-Hang
 Highw Res Rec n 438 1973 p 21-33 CODEN HIRPAX
 An investigation of the failure probability of linear elastic heterogeneous embankments is reported, and illustrations are given for incorporating those results into acceptance specifications. Failure is defined in terms of deformations. 18 refs.
 DESCRIPTORS: (-SOILS, *Compaction), (ROADS AND STREETS, Stabilization), SOIL MECHANICS, FAILURE ANALYSIS, EMBANKMENTS.
 CARD ALERT 406, 483

337666 ID NO. - E1730737666
OFFSHORE TECHNOLOGY CONFERENCE, 4TH, 1972.
 Conf
 Offshore Technol Conf, 4th, Annu, Houston, Tex, May 1-3 1972. Prepr. Pap. 2 Vol., Various Pagings Publ by Offshore Technol Conf, Dallas, Tex, 1972. Available from IEEE (72 CHO 599 1-TARI), New York
 One hundred and sixty nine papers are presented. The topics discussed are various aspects of oceanography, methods of combating oil spills; the design of mooring cables and submarine pipelines; studies of underwater welding; the drilling of and equipment for offshore oilwells; the design and stress analysis of marine platforms; analysis of problems encountered in the Arctic environment; soil mechanics studies related to pile driving; and wave statistics and wave spectra etc. Selected papers are indexed separately.
 DESCRIPTORS: *UNDERSEA TECHNOLOGY, (WATER POLLUTION, Oil Soils), MARINE PLATFORMS, (OIL WELL DRILLING, Offshore), SUBMERSIBLES, (PIPELINES, Offshore).
 IDENTIFIERS: DRILL SHIPS
 CARD ALERT 453, 472, 511, 674

337283 ID NO. - E1730737283
INTERNATIONAL CONFERENCE ON MICROZONATION FOR SAFER CONSTRUCTION RESEARCH AND APPLICATION, PROCEEDINGS, 2 VOLUMES, 1972.
 Algermissen, S. T.; Perkins, David M.; Dewey, James M.; Dillinger, William H.; Taggart, James; Stepp, J. C.; Harding, Samuel T.; Campbell, Kenneth M.; Espinosa, A. F.; Matthiessen, R. P.; Rojahn, C.
 Int Conf on Microzonation for Safer Constr Res and Appl, Proc, Seattle, Wash, Oct 30-Nov 3 1972, 2 Vol., 987 p. Sponsored by NSF, UNESCO, Univ of Washington, ASCE, and Am Acad of Mech Publ by Confon Microzonation, Seattle, Wash, 1972
 Following is the continuation of the list of titles and authors of the papers presented: General Consideration and Parameters. By S. T. Algermissen and David M. Perkins. Analysis of Earthquake Locations and Mechanisms in Northern Utah, Wyoming, Idaho and Montana. By James M. Dewey, William M. Dillinger, James Taggart and S. T. Algermissen. Analysis

of Completeness of the Earthquake Sample in the Puget Sound Area and Its Effect on Statistical Estimates of Earthquake Hazard. By J. C. Stepp. Studies of Site Amplification in San Fernando. By David M. Perkins, Samuel T. Harding, Kenneth W. Campbell and A. F. Espinosa. Structural Considerations. By R. B. Matthiessen and C. Rojahn.
 DESCRIPTORS: (-STRUCTURAL DESIGN, *Earthquake Resistance), (URBAN PLANNING, Zoning), (GEOPHYSICS, Seismic), SOIL MECHANICS, LANDSLIDES, EARTHQUAKES, IDENTIFIERS: MICROZONATION
 CARD ALERT 403, 408, 483, 484

337278 ID NO. - E1730737278
INTERNATIONAL CONFERENCE ON MICROZONATION FOR SAFER CONSTRUCTION RESEARCH AND APPLICATION, PROCEEDINGS, 2 VOLUMES, 1972.
 Ishihara, Kenji; Mitsui, Shimpel; Miller, Raymond P.; Brown, Fred R.; Donovan, Neville C.; Valera, Julio E.; Hunt, Roy E.; Schwarz, Sigmund D.; Musser, John M. Jr.; Lee, Kenneth L.; Chan, Kwok; Arango, I.; Dietrich, R. J.; Liu, S. C.
 Int Conf on Microzonation for Safer Constr Res and Appl, Proc, Seattle, Wash, Oct 30-Nov 3 1972, 2 Vol., 987 p. Sponsored by NSF, UNESCO, Univ of Washington, ASCE, and Am Acad of Mech Publ by Conf on Microzonation, Seattle, Wash, 1972

Following is the continuation of the list of titles and authors of the papers presented: Field Measurements of Dynamic Pore Pressure During Pile Driving. By Kenji Ishihara and Shimpel Mitsui. Shear Modulus Determination of Soils by In Situ Methods for Earthquake Engineering. By Raymond P. Miller and Fred R. Brown. Probabilistic Approach to Seismic Zoning of an Industrial Site. By Neville C. Donovan and Julio E. Valera. Geologic Environment: Definition for Remote Sensing. By Roy E. Hunt. Various Techniques for Making In Situ Shear Wave Velocity Measurements SEM DASH: A Description and Evaluation. By Sigmund D. Schwarz and John M. Musser, Jr. Number of Equivalent Significant Cycles in Strong Motion Earthquakes. By Kenneth L. Lee and Kwok Chan. Soil and Earthquake Uncertainties on Site Response Studies. By I. Arango and R. J. Dietrich. Statistical Analysis of 1971 San Fernando Earthquake Ground-Motion Data. By S. C. Liu.
 DESCRIPTORS: (-STRUCTURAL DESIGN, *Earthquake Resistance), (CONSTRUCTION INDUSTRY, Research), (GEOPHYSICS, Seismic), SOIL MECHANICS, (FOUNDATIONS, Earthquake Resistance), IDENTIFIERS: MICROZONATION, ZONATION
 CARD ALERT 405, 408, 483, 484, 901

326145 ID NO E1730526781
PHYSICAL NATURE OF THE BURST PROMINENCE OF BROWN COAL SEAMS.
 Petukhov, I. M.; Akinshin, B. I.; Volkov, E. V.
 VNIMI, Leningrad, USSR
 Sov Mining Sci v 8 n 3 May-Jun 1972 p 246-249. (CODEN
 SMNSAT)

Rock burst amounts to brittle fracture of coal in the limiting stress zone in the marginal sector of coal seam. The probability of its occurrence is largely determined by the mechanical properties of the coal in situ. A characteristic property of all lignite deposits is that they usually consist of thick seams of highly porous (30-60%) and completely water-saturated coals. The two-phase structure of lignite with very high moisture content indicates that their mechanical properties may depend significantly on the ratio of the solid and liquid phases, whose investigation is reported.

10 refs.
 DESCRIPTORS: (-LIGNITE MINES AND MINING, *Rock Bursts), ROCK MECHANICS.
 IDENTIFIERS: COAL BURSTS
 CARD ALERT: 482, 502, 503

326781 ID NO E1730526781
NORTH AMERICAN RAPID EXCAVATION AND TUNNELING CONFERENCE, 1972.

Newcomb, R.; Haffen, M.; Janin, J.; Gates, R. H.; Hendon, A. J.; Oriard, L. L.; Savena, D. S.; Tuttle, J. K.
 North Am Rapid Excavation and Tunneling Conf. Proc. Sponsored by ASCE and ASCE, Chicago, Ill., Jun 5-7 1972. 2 Vol. 1684 p Publ by Soc of Min Eng of ASCE, New York, 1972.
 Following is the continuation of the list of titles and authors of papers presented. Realism in Statistical Demand Forecasting. The Economic Challenge. By R. Newcomb. Grouting. Cohesionless Water Bearing Soils in City Tunnels. By M. Haffen and J. Janin. Explosive Excavation Research. By R. H. Gates. Specifications for Controlled Blasting in Civil Engineering Projects. By A. J. Hendon, Jr. and L. L. Oriard. Controlled and Monitored Rock Excavations in Urban Areas. By D. S. Savena and J. K. Tuttle.
 DESCRIPTORS: (-TUNNELS, *Construction), EXCAVATION, (STRUCTURAL DESIGN, Underground), CONSTRUCTION EQUIPMENT, ROCK MECHANICS, SOIL MECHANICS.
 IDENTIFIERS: TUNNELING
 CARD ALERT: 401, 405, 408, 483, 931

326221 ID NO E1730526221
PROBABILISTIC ANALYSIS OF SEEPAGE.
 Wu, Tien H.; Vyas, Shyam K.; Chang, Nien Yin.
 Ohio State Univ, Columbus
 ASCE J Soil Mech Found Div v 99 n SM4 Apr 1973 p 9687 p
 323 740. (CODEN JSFEAQ)

A method was developed for the analysis of seepage through nonhomogeneous soil deposits. The layers of pervious soils in the deposit were considered as inclusions within a medium of

low permeability. Data obtained from the Mississippi River alluvium and fluvial glacial deposits were interpreted by means of the statistical model. The results were used to compute the seepage at the Port Allen Lock excavation and the Gravelle Dam. The computed seepage is of the right order of magnitude when compared with the measured seepage. 17 refs.
 DESCRIPTORS: (-SOILS, *Permeability), (DAMS, EMBANKMENT, Seepage), (RIVERS, Sedimentation), SOIL MECHANICS, MATHEMATICAL MODELS.
 IDENTIFIERS: SEEPAGE, ALLUVIAL DEPOSITS
 CARD ALERT: 441, 483, 922, 931

320816 ID NO E1730420816
STOCHASTIC STUDY ON SOME PROPERTIES AND FAILURE PROBABILITY FOR UNSATURATED SOILS.

Matsuo, Minoru; Kuroda, Katsuhiko
 Proc Jap Soc Civ Eng n 208 Dec 1972 p 65-75. (CODEN: DGRHAD)
 16 refs. In Japanese.
 DESCRIPTORS: (-SOILS, *Testing), SOIL MECHANICS.
 IDENTIFIERS: SHEAR STRENGTH, SATURATION
 (CARD ALERT: 483, 931)

319714 ID NO E1730419714
MODEL INVESTIGATIONS OF PILE GROUPS IN SAND.

Lejchman, Andrzej F.
 ASCE J Soil Mech Found Div v 99 n SM2 Feb 1973 p 9579 p
 197 217. (CODEN JSFEAQ)
 Analysis of the bearing capacity and pile action of pile groups in cohesionless soil. Model tests were conducted in loose and compacted sand, and applied to various types of pile groups: square, rectangular, and single row. The groups also varied in pile number and spacings. The calculation of the bearing capacity of the piles was analyzed by means of statistical equations that assumed the bearing capacity of a single pile to be composed of the sum of the resistance of the pile point and skin. 24 refs.
 DESCRIPTORS: (-PILES, *Bearing Capacity), SOIL MECHANICS, SAND AND GRAVEL.
 IDENTIFIERS: PILE GROUPS
 (CARD ALERT: 405, 483)

304573 ID NO. - E1730104573
UNCERTAINTY OF SETTLEMENT ANALYSIS FOR OVERCONSOLIDATED CLAYS.

Krizek, Raymond J.; Kay, J. Neil
Northeastern Univ., Evanston, Ill
Highw Res Rec n 405, 1972 p 143-151 CODEN: HIRRAH
The uncertainty associated with using the Skempton Bjerrum method for settlement determination in overconsolidated clays is evaluated by means of a probabilistic procedure wherein the deterministic parameters are represented by appropriate probability distribution functions. 7 refs
DESCRIPTORS: (*SOILS, *Consolidation), SOIL MECHANICS, CLAY, ROADS AND STREETS.
IDENTIFIERS: SETTLEMENT ANALYSIS
CARD ALERT: 406, 483

300670 ID NO. - E1730100670
MOEGLICHKEITEN ZUR BESTIMMUNG DER BEANSPRUCHUNG DES HAUPTTHANGENDEN ALS ABBAUFOLGE. Slett brackets possibilities of Determining Stresses in Overburden Strata Caused by Mining Exploitation Slight brackets.

Fenk, Juegen
Bergakademie Freiberg, E Ger
Neue Bergbautech v 2 n 8 Aug 1972 p 601-606 CODEN: NEBRAB
The necessity of gaining insight into the behavior of overburden strata requires surveying and periodical monitoring of strata displacement through measurements in boreholes, mine shafts etc; simulation of these displacements on physical models and their evaluation; and processing of secured data by known computerized techniques, among which the T. Kochmanski statistical integral theory is mentioned. 7 refs. In German.
DESCRIPTORS: (*COAL MINES AND MINING, *Subsidence), (COAL MINES AND MINING, Models), ROCK MECHANICS, MATHEMATICAL STATISTICS.
CARD ALERT: 502, 503, 922

297180 ID NO. - E1721319182
STATISTICAL THEORY OF THE POLYAXIAL COMPRESSIVE STRENGTH OF MATERIALS.

Lundborg, N.
Swedish Detonic Res Found, Vinterviken, Stockholm, Swed
Int J Rock Mech Min Sci v 9 n 5 Sep 1972 p 617-624 CODEN: IJRMAS
Weibull's statistical theory of strength, extended to compressive stresses, is used in calculating the influence of the intermediate principal stress on the strength. The effective shear stress is calculated and integrated over the solid angle where the effective shear stress is greater than zero and the probability of rupture in polyaxial compression is calculated. The results are in good agreement with experimental results. 9 refs.
DESCRIPTORS: *ROCK MECHANICS, STRENGTH OF MATERIALS.
CARD ALERT: 421, 422, 502

293177 ID NO. - E1721215378
NEW APPROACH TO THE DYNAMIC BREAKAGE OF ROCK.

Kennedy, P A
Geotechnical Engineering Ltd, Gloucester, Engl
Tunnels Tunnelling v 4 n 5 Sep Oct 1972 p 427-429 CODEN: TULUDV
A new method of dynamic breakage of rock has been developed utilising the secondary breakage effect from an electrical pulse passed through electrodes into rock specimens. Breakage was analysed in terms of increased surface area using a computerised statistical method. From experimental results and a review of available literature, it seems that this method of dynamic breakage is at least as efficient as conventional chemical blasting. 14 refs.
DESCRIPTORS: *ROCK MECHANICS, IDENTIFIERS: DYNAMIC ROCK BREAKAGE
CARD ALERT: 502

293315 ID NO. - E1721215316
ANALYSIS OF FRACTURE ORIENTATIONS FOR INPUT TO STRUCTURAL MODELS OF DISCONTINUOUS ROCK.

Maitab, M A; Bolstad, D D; Allredge, J R; Shanley, R.
Denver Mining Res Center, Colo
U S Bur Mines, Rep Invest RI n 7669, 1972, 76 p
This report presents a new procedure for analyzing the orientations of rock fractures in an engineering site. The procedure, coded in a computer program, identifies clusters or groupings among the fracture orientations and calculates the mean orientation of the fractures within each cluster and the dispersion or scatter among these fracture orientations. The technique is applied to the treatment of three examples. 81 refs.
DESCRIPTORS: *ROCK MECHANICS, (GEOLOGY, Tectonics), STATISTICAL METHODS, IDENTIFIERS: ROCK FRACTURE ORIENTATIONS, ENGINEERING GEOLOGY
CARD ALERT: 481, 502, 922

293755 ID NO - E1721014366
FATIGUE FAILURE AND FRACTOGRAPHY OF THE ROCK UNDER THE PULSATING TENSILE STRESS.
 Nishimatsu, Tsuchi; Hirose, Tetsuo, R.
 Univ of Tokyo, Jap
 Proc of 15th Jap Congr on Mater Res, Tokyo, Sep 1971 Soc
 Mater Sci Jap, 1972, p 141-144
 Fatigue failure of same rock under the pulsating tensile stress is reported. On the basis of the statistical analysis of the fluctuation of fatigue lives, the process of fatigue failure of the rock is suggested. In order to shed more light on the failure process of the rock, the fracture surfaces of the rock specimen are examined by electron fractographical techniques. 5 refs.
 DESCRIPTORS: *ROCK MECHANICS.
 CARD ALERT 483, 502

281858 ID NO - E1721103858
WATER JET CUTTING OF SEDIMENTARY ROCK.
 Summers, David A.; Henry, Richard L.
 Univ of Missouri, at Rolla
 JPT, J Pet Technol v 24 Jul 1972 p 797-802 CODEN: JPTUAM
 Depth and specific energy of breakage values are used to determine the relative efficiencies of cutting sandstone and limestone with a continuous jet of water. Results of using jet action alone compared with results obtained when mechanical breakage is also used to remove rock indicate the latter method is the more effective. A statistical analysis of data from the experiment provides a regression equation relating the properties of the jet to the cutting process. 11 refs.
 DESCRIPTORS: (*ROCK DRILLING, *Jet Method), ROCK MECHANICS, IDENTIFIERS, ROCK CUTTING
 CARD ALERT 405, 502

237263 ID NO - E172007263
Prognosis of small tectonic disturbances by means of analog probability methods
 Levin, E.; M027HEGOROV AS
 Tyumen Industrial Inst, Soviet Union
 Izv Vyssh Ucheb Zaved, Gorn Zh n 7 1971 p 1-9 CODEN: IVUODA
 The intensity prediction of small tectonic disturbances, whose amplitude ranges from 0.1 to 2 yd, is considered in the course of the planning stage of mining shafts. Statistical data are presented and a model introduced. 7 refs. In Russian.
 DESCRIPTORS: *ROCK MECHANICS,
 CARD ALERT 483, 502

235578 ID NO - E1720015578
Statistical method for analysis of diffusion in soils
 NAKANO Y, MURDMANN RP

U.A. BRELL, Hannover, FRG
 Soil Sci Soc Amer., Proc v 35 n 3 May-June 1971 p 397-402
 A statistical method for analysis of diffusion phenomena in soil for which the diffusion coefficient is time- and position dependent. The effect of the approach is demonstrated by application of the method in two exotic distributions in frozen soil is calculated. In the other case, the distribution of a volatile chemical is determined in two-layer profile. 20 refs.
 DESCRIPTORS: (*SOILS, *Frozen), SOIL MECHANICS, STATISTICAL METHODS,
 CARD ALERT 483, 922, 931

230668 ID NO - E172X030668
Pillar strength prediction from representative sample of hard rock
 KOSTAK B
 Czechoslovak Acad of Sciences, Prague
 Int J Rock Mech Mining Sci v 8 n 5 Sept 1971 p 523-6
 CODEN: IJRMMA

Title method makes use of the cumulative distribution function of strength as of the basic characteristic of a heterogeneous rock. It is argued that a certain failure probability can be found that is supposed to be close to constant for various types of hard rock under standard loading conditions. From earlier experiments on feldspathic sandstone the probability was calculated as p equals 11.5%. The strength related to this probability in the cumulative distribution function is the prediction of pillar strength for any particular rock. A representative sample of that rock must be obtained that would preserve defects in the correct proportion to the sound rock. 6 refs.
 DESCRIPTORS: (*MINES AND MINING, *Roof Supports), ROCK MECHANICS,
 CARD ALERT 502, 504, 505

222627 ID NO. - E172X02023
Proposed method to obtain actual strength parameters of mine
rocks and rock masses

CHIAN SSM
Univ of Idaho, Moscow
Int Soc Rock Mech, v 2, Proc 2nd Congr, Sept 21-26 1970,
Belgrade, Yugoslavia, Theme 3, Pap 12, p 83-8
Published physical properties data of mine rocks
predominantly refer to homogeneous samples. Only infrequently
can the data be accepted as a true measure of the parent in-
situ mass for design purpose. This paper describes a proposed
method, using statistical and computer processing as aids, to
determine strength parameters of actual mine rocks near
mineralization zones. Rock types, mineral compositions and
fabrics, fracturing conditions, as well as the loading
directions are all being considered in this technique. 6
refs.

DESCRIPTORS: *ROCK MECHANICS, STRENGTH OF MATERIALS,
CARD ALERT: 421, 422, 502

218935 ID NO. - E172X018935
Theory for the shear strength of rockf111

WILKINS JK
HydroElectric Commission, Tasmania, Australia
Rock Mech, Felsmech, Mec Roches v 2 n 4 Dec 1970 p 205-22
Existing knowledge of the meaning of the shear strength of
rock fill, and of how and why it varies is inadequate. Shear
strength is shown to be controlled by the basic angle of
friction of rock on rock, the voids ratio and the particle
breakage and to be dependent on the ratio of major to minor
principal stresses. Using statistical methods combined with
some simple assumptions based on experimental work formulas
are derived for the shear strength of rock fill. Theoretical
results are compared with the results of laboratory triaxial
tests. 10 refs.

DESCRIPTORS: (*DAMS, EMBANKMENT, *Stability), (DAMS,
EMBANKMENT, Failure), SOIL MECHANICS, STATISTICAL METHODS,
CARD ALERT: 408, 441, 483, 922, 931

210314 ID NO. - E172X010314
Safety factors and the probability distribution of soil
strength

LUMB P
Univ of Hong Kong, China
Can Geotech J v 7 n 3 Aug 1970 p 225-42 CODEN: CGJQA
For soils exhibiting both cohesive and frictional components
of strength, the natural variabilities of the components are
compared for soil in the undisturbed state and as compacted in
each dam. The probability distributions of the components
are shown to agree more closely with a theoretical beta
distribution than with the commonly assumed normal
distribution. The cohesive and frictional components can be
regarded as independent variables and the design safety factor
interpreted in terms of probabilities. The undrained strength

of clays also agrees with a beta distribution but in this case
there are no limiting safety factors. 20 refs
DESCRIPTORS: (*SOILS, *Bearing Capacity), SOIL MECHANICS,
CARD ALERT: 421, 422, 483

154741 ID NO. - E171X054741
Numerical method for the analysis of finite beams on a
statistically nonhomogeneous foundation

IGNATOV VP; VERSHININ SA
Soil Mech Found Eng v 3 May-June 1970 p 162-6 CODEN: SMFEA
Study described is devoted to method for analyzing finite
beams on statistically nonhomogeneous foundations satisfying
the Winkler bed hypothesis. The equilibrium equation for a
beam subjected to a load of variable intensity is stated. The
boundary conditions necessary for solving the case of a free
beam of certain length are represented by a zero accidental
cross-sectional moment and shear
DESCRIPTORS: *BEAMS AND GIRDERS, FOUNDATIONS, SOIL MECHANICS

CARD ALERT: 405, 408, 483, 931

140723 ID NO. - E171X040723
Limit analysis of stability of slopes

CHEN WF; GIGER MW
Lehigh Univ Bethlehem, Pa
ASCE J Soil Mech Found Div v 97 n SM1 Jan 1972 paper 7828 p
19-26 CODEN: JSFEA

The upper bound theorem of limit analysis is applied to
obtain complete numerical solutions for the critical height of
slopes. A logarithmic spiral mechanism where the failure
surface may pass below the toe is assumed. The analysis
includes the existing limit equilibrium solutions as well as
the previously obtained limit analysis solutions as a special
case, and may be considered a generalization of all the
previous solutions. The results found are practically
identical to those obtained by the existing limit equilibrium
procedures.

DESCRIPTORS: (*SOIL MECHANICS, *Stabilization), STATISTICAL
METHODS, PLASTICITY, EMBANKMENTS,
IDENTIFIERS: SLOPES

CARD ALERT: 405, 421, 483, 922, 931

135940 ID NO - E171X032707
Number of test- pieces required to determine the strength of rock
 YAMAGUCHI U
 Univ of Tokyo, Japan
 Int J Rock Mech Mining Sci v 7 n2 Mar 1970 p 209-27
 Studies to determine the number of test- pieces required to test strength of rock are reported. The number of test- pieces required is quantitatively decided by using a statistical technique- decision of the sample number. Experiments were carried out on three kinds of rock- granite, andesite, and sandy tuff, and measurements were made of the compressive and tensile (radial compression) strengths. As a general conclusion, it appears that 10 or more test pieces are required to determine the strength of rock, even if all the test pieces are prepared from the same block of the rock.
 DESCRIPTORS: *ROCK MECHANICS, STRENGTH OF MATERIALS.
 CARD ALERT: 421, 422, 502

132707 ID NO - E171X032707
Application of probability theory to factor of safety
 KO KC; PIPER DA
 Trans Soc Mining Eng AIME v 247 n 3 Sept 1970 p 260-2
 The theory of probability with respect to the failure of structures is discussed. It is shown that the probability of safety, probability of failure, and factor of safety are directly related to each other and that as standard deviation approaches zero, the probability curves approach a unit step function which can be interpreted as the conventional factor of safety. 5 refs.
 DESCRIPTORS: *ROCK MECHANICS, (MINES AND MINING, Rock Pressure), (GEOLOGY, Engineering), PROBABILITY.
 CARD ALERT 481, 502, 504, 505, 932

125819 ID NO - E171X025819
Frequency and apertures of fractures in rock
 SNOW DT
 Colorado School of Mines, Golden
 Int J Rock Mech Mining Sci v 7 n 1 Jan 1970 p 23-40, 2 plates CODEN: IJRMHA
 Pressure- test data have been used to estimate the average spacing and the average aperture of waterconducting fractures in undisturbed rock masses. The discharge of water injection tests in jointed crystalline foundation rocks lend themselves to statistical interpretation leading to estimates of the spatial frequency of joints, and the mean and variance of the size distributions of fracture apertures, which are logarithmic.
 28 refs.
 DESCRIPTORS: *PETROLOGY, ROCK MECHANICS, (FLOW OF FLUIDS, Capillaries).
 CARD ALERT 482, 502, 631

192410 ID NO - E171X002410
Improving fracture gradients estimates in offshore drilling
 TAYLOR DR; SMITH TK
 Shell Oil Co, Metairie, LA
 Oil Gas J v 68 n 15 Apr 13 1970 p 67-72 CODEN: OIGJUA
 Optimum offshore drilling operations call for accurate estimates of formation fracture gradients, and theoretical predictions are often based on inadequate formation property data. Application of statistical analysis of injection tests, carried out by Shell Oil Co in the normal pressured section of abandoned wells, resulted in logical casing programs and predictions of maximum allowable mud density. The density of the drilling fluid must be such that no lost circulation occurs due to hydraulic fracturing of the formation. Theory and analysis of empirical data is presented. 6 refs.
 DESCRIPTORS: *OIL WELL DRILLING, *Offshore), (OIL WELLS, Hydraulic Fracturing), ROCK MECHANICS.
 CARD ALERT: 502, 511, 512

101154 ID NO - E171X001154
Statistical distribution of fatigue life and the fracture mechanism of the rock
 NISHIMATSU Y; HERDESEWUJO R
 Univ of Tokyo, Japan
 Proc 13th Jap Congr on Mater Res, Tokyo, Japan, Sept 1969 p 203-6
 Paper reports the test results on the fatigue failure of the rock under the pulsating compressive stress. Standing on the aspect in which the fatigue failure is assumed as a stochastic process, the observed fluctuation of the fatigue life is discussed. Based on this discussion, the mechanism of the fatigue failure of the rock would be suggested. 5 refs.
 DESCRIPTORS: *ROCK MECHANICS, (MATERIALS TESTING, Fracture), (MATERIALS TESTING, Fatigue).
 CARD ALERT: 421, 483, 502

052566 ID NO. - E170X152566
Statistical theory of brittle fracture for rock materials- 2
BRADY BT

Colorado School of Mines, Golden
Int J Rock Mechanics & Min Sciences v 6 n 3 May 1969 p
285-300

Brittle failure under homogenous triaxial states of stress.
Critical volumetric microcrack strain criterion outlined in p
1 (indexed elsewhere) is extended to include total failure of
brittle materials deformed under condition of homogenous
triaxial loading; it is shown that criterion indicates
fracturing characteristics of brittle rock materials are
influenced by value of intermediate stress. 10 refs.

DESCRIPTORS: *ROCK MECHANICS.

CARD ALERT: 502

051952 ID NO. - E170X151952

Apparatus and techniques for rationalization of structural
statistical data in tectonic and rock
investigations. (Elinige Gerate und Techniken fuer die
Rationalisierung geostatistischer Arbeiten bei tektonisch-
en und felsmechanischen Untersuchungen)

BEHR WJ

Bergakademie Freiberg, East Germany
Rock Mechanics Felsmechanik-Mechanik des Roches v 1 n 2-3
Oct 1969 p 157-64

For compass measurement a field recording device is used,
with which punch diagrams are made. A semiautomatic universal
stage enables th automatic recording of microscopic fabric
measurements which are also recorded by punch diagrams. These
diagrams are transformed into contour diagrams by a
photomechanical procedure. In German.

DESCRIPTORS: *ROCK MECHANICS.

CARD ALERT: 502

043621 ID NO. - E170X143621

Decision theory applied to settlement predictions

ROLAVAN JI; HEGG K; BENJAMIN JR

Dames and Moore, San Francisco, Calif
ASCE J Soil Mech Found Div v 96 n 5M4 July 1970 paper 7390 p
1127-41

New application of theory of probability permits a rational
approach to an evaluation of the meaning of 'safety
factors', as used in soil mechanics. The Bayesian approach
shows how the reliability of an engineering analysis depends
on the amount and nature of the engineer's previous
experience. Statistical decision theory is applied to
determine a course of action which is logically consistent
with the decision-maker's preferences. A case study is
examined involving settlements of reclaimed marshland. 14
refs.

DESCRIPTORS: *PROBABILITY, SOIL MECHANICS, (FOUNDATIONS,
Settlement), STATISTICAL METHODS.

CARD ALERT: 405, 483, 922

038146 ID NO. - E170X038146

Safety analysis of slopes

WU FH; KRAFT JR LM

Ohio State Univ, Columbus

ASCE J Soil Mech Found Div v 96 n 5M2 Mar 1970 paper 7174 p
609-30

The various uncertainties and errors are used to compute the
failure probability of slopes designed according to the
conventional practice. Statistical decision theory is used to
obtain the optimum safety factor and the expected cost. The
results also show the effect of uncertainties on the optimum
design and the expected cost. The study illustrates one
approach in the application of research results to practice
and the evaluation of benefits gained from research. 40 refs.

DESCRIPTORS: *SOIL MECHANICS, STRENGTH OF MATERIALS,
STATISTICAL METHODS, (STRUCTURAL DESIGN, Safety Factor).

IDENTIFIERS: SLOPE PROTECTION

CARD ALERT: 408, 421, 422, 483, 914

023370 ID NO. - E170X023370

Estimation of climatic parameters for frost depth prediction

MOULTON LK; SCHAUB JH

West Virginia Univ, Morgantown

ASCE-proc v 95 (Transportation Eng J) n 1E4 Nov 1969 paper
5872 p 605-16

A method for estimating air freezing index, duration of
freeze, and mean annual temperature used in West Virginia. A
statistical study was made to relate air freezing index,
duration of freeze and mean annual temperature to the
elevations and latitudes of the weather stations studied and
to permit consideration of any given return period or
recurrence interval for design. It is proposed that the
recurrence interval for pavement design purposes be chosen to
be equal to the design life of the pavement. 9 refs. 1

DESCRIPTORS: (*ROADS AND STREETS, *Frost Effect), (ROADS AND
STREETS, Temperature Measurement), SOIL MECHANICS.

IDENTIFIERS: PAVEMENTS

CARD ALERT: 406, 483

013587 ID NO - E1704003587
Compressive strength of some Indian rocks
 (Data on 024 pg)
 Central Mining Research Station, Dhanbad, India
 Instn Eng'g (India) v 49 n 2 pt MM 2 Mar 1969 p 72 B1
 Paper aims at providing statistical data in regard to compressive strength of rocks, as such, different kinds of rocks having different lithology were obtained from Jharia and Karanpura coal fields and were subjected to compression testing. Results with comments and conclusions are summarized in paper. 17 refs
 DESCRIPTORS: *ROCK MECHANICS. *COAL MINES AND MINING.
 CARD ALERT 035, 129

013587 ID NO - E1704003587
On coefficient of static earth pressure of noncohesive soils. (Ein Beitrag um RBIVRT KOHLESTONSLÖSER Böden)
 SCHMIDT, J
 Bergbautechnik v 18 n 11 Nov 1968 p 558 60
 For statistically defined soil model tensor of elasticity and coefficient of earth pressure at rest, which can immediately be indicated as dependent on porosity, are calculated by means of structural parameters (angle of contact between particles and number of points of contact). Soil model shows phenomenon of %elastic hysteresis%. (coefficient of earth pressure at rest depending on stress in case of decompression) 8 refs In German
 DESCRIPTORS: *SOIL MECHANICS. *LIGNITE MINES AND MINING.
 CARD ALERT 035, 192

013589 ID NO - E1704013579
Canada's dynamic mining industry 1970-2000
 Eng & Min v 120 n 9 Sept 1969 various paging
 Special report profiles expansion ein of world's No. 3 mineral producers. unlimited resources in tar sands, nickel, uranium, and iron ores are discussed on hand of map showing Canada's principal mining areas; several outstanding mining properties are described; favorable mining climate with emphasis on geology, exploration, transportation and finances is outlined; innovations in geophysics, rock mechanics, mining, and ore treatment techniques are discussed on actual cases; mine directory and statistics are included.
 DESCRIPTORS: *MINERAL INDUSTRY AND RESOURCES. *Canada.
 CARD ALERT 503, 504, 505

013579 ID NO - E1704013579
Spectral simulation and earthquake site properties
 LIU, SC. JIAVERI, DP
 Bell Telephone Labs, Whippany, NJ
 ASCE Proc v 95 (J Eng Mechanics Div) n EW5 Oct 1969 paper 6948 p 1145-68
 Analytic results of study on site properties and their use in ground motion prediction and simulation: spectral simulations of random ground motions based on modal contributions are formulated; linear filters representing ground transfer characteristics of seismic stations are investigated. Single mode and two mode stochastic models are developed to permit prediction of random-type ground motions and induced response statistics of structures.
 DESCRIPTORS: *STRUCTURAL DESIGN. *Earthquake Resistance. *EARTHQUAKES. *SOIL MECHANICS.
 CARD ALERT 032, 192, 200

011469 ID NO - E1704011468
Influence of random Poisson's ratio on displacements in elastic half-plane
 BARGMANN, H; GILFICKI, J
 Technische Hochschule, Vienna, Austria
 Int J Solids & Structures v 5 n 9 Sept 1969 p 915-20
 Displacement boundary problems are considered for homogeneous isotropic elastic half-plane with random Poisson's ratio v. Probability densities, expected values and variances of displacement field are determined and evaluated for uniform probability distribution of v; as example, effect of discontinuity of boundary vertical displacement is determined and used to obtain settlement of earth surface under coal excavation
 DESCRIPTORS: *COAL MINES AND MINING. *Rock Pressure. *ROCK MECHANICS. *STRESSES. *ELASTICITY.
 CARD ALERT 035, 075, 128, 129, 200

003606 ID NO - E1704003606

APPENDIX E: GEOARCHIVE (FILE 55)

DIALOG FILE#8 GENARCHIVE 74-82/May (Copr GEOSYSTEMS) (Item 9 of 44) User 5208 1sep82 2230

677171 GA584000344
Statistical reproducibility of the dynamic and static fatigue experiments
 RITTER, JE; BANOVODADIVAY, N; JAKUS, K
 Bull Am Ceram Soc (Columbus) 60/8 P198 806 1981 JRNL
 CODE BACSOI
 LANGUAGE ENGLISH
 DESCRIPTIONS: EXPERIMENTAL SOIL MECHANICS; SAMPLING;
 CONSTRUCTION MATERIALS; STATISTICAL ANALYSIS; MINE PRODUCTION;
 LINEAR REGRESSION
 DESCRIPTOR CODES 362600; 691200; 451000; 692000; 346200;
 694100

677116 GA584000344
Partial coefficient design in geotechnics
 SEMPLE, RM
 Ground Eng (Brentwood) 14/6 P47-48 1981 JRNL CODE GENG11
 LANGUAGE ENGLISH
 DESCRIPTIONS: ENGINEERING GEOLOGY; STATISTICAL ANALYSIS
 DESCRIPTOR CODES 360000; 692000

670376 GA580000276
Probabilistic modeling of uncertainties in sampling and testing for undrained strength
 KURODA, K; CHODURIY, R; WATANABE, K
 Soils Found (Tokyo) 21/2 P47-62 1981 JRNL CODE SF00N1
 LANGUAGE ENGLISH
 DESCRIPTIONS: FOUNDATION ENGINEERING; ROCK MECHANICS;
 PROBABILITY
 DESCRIPTOR CODES 360200; 365000; 691000

658966 GA573000367
Site dependent spectra for aseismic design
 KHANNA, R; PAUL, DK; CHANDRA, B
 Bull Indian Soc Earthquake Technol (Roorkee) 14/3 P83 1001
 1977 JRNL CODE BIS011
 LANGUAGE ENGLISH
 DESCRIPTIONS: EARTHQUAKE ENGINEERING; ROCK MECHANICS; SOIL
 MECHANICS; STATISTICAL ANALYSIS
 DESCRIPTOR CODES 367000; 365000; 362000; 692000

632954 GA547000529
Investigation of Egypt's Abu Tartur phosphate deposit
 Phosphorus Potassium (London) 109 P37-6 1980 JRNL CODE
 PP01A1
 LANGUAGE ENGLISH
 DESCRIPTIONS: PHOSPHATE DEPOSITS; MINERAL PRODUCTION
 STATISTICS; GEOCHEMISTRY OF MINERAL DEPOSITS; LITHOSTRATIGRAPHY;
 ROCK MECHANICS
 AUXILIARY DESCRIPTORS EGYPT

629462 GA543000402
Mathematical-statistical connections between rock-mechanical and rock-physical parameters
 HEINE, KH
 Z Angew Geol (Berlin) 26/10 P519-523 1980 JRNL CODE ZA1101
 LANGUAGE GERMAN
 DESCRIPTIONS: ROCK MECHANICS; PHYSICAL PROPERTIES OF ROCKS;
 STATISTICAL ANALYSIS; NUMERICAL ANALYSIS
 DESCRIPTOR CODES 365000; 540300; 692000; 696000

619052 GA534000736
Statistical study of results of laboratory geotechnical tests on the clays of Flandres (north France)
 DEPREZ, D; VERRET, J
 Int Geol Congr (Paris) CONF. DATES 07 JULY TO 17 JULY 1980
 NO 80 0001
 P1187 1980
 LANGUAGE FRENCH
 DESCRIPTIONS: EXPERIMENTAL ROCK MECHANICS; CLAYS; STATISTICAL
 ANALYSIS; STRUCTURAL GEOLOGY
 AUXILIARY DESCRIPTORS FRANCE
 DESCRIPTOR CODES 365600; 553700; 692000; 730000
 AUXILIARY DESCRIPTOR CODES 210000

617400 GA532000169
Probabilistic evaluation of penetration resistance
 LANG, WH
 Publ Nor Geotek Inst (Oslo) 131 19P 1980 JRNL CODE PR1101
 LANGUAGE ENGLISH
 DESCRIPTIONS: FOUNDATION ENGINEERING; PETROLEUM PRODUCTION
 OPERATIONS; SOIL MECHANICS; SOIL PHYSICS; ROCK MECHANICS;
 PROBABILITY
 AUXILIARY DESCRIPTORS NORTH SEA
 DESCRIPTOR CODES 360200; 343000; 362000; 741600; 365000;
 694100
 AUXILIARY DESCRIPTOR CODES 138000

477691 GA384000246
Statistical comparison of the pulse and resonance methods for determining elastic moduli
 THILL, R.; PENG, S.S.
 Geol. Res. Assoc. (NILES, Springfield VA 22161)
 1974
 PB 231 129P
 *GRAN
 LANGUAGE: ENGLISH
 DESCRIPTORS: ROCK MECHANICS; MARBLES; GRANDDITORITES;
 STATISTICAL ANALYSIS
 DESCRIPTOR CODES: 365000; 549800; 543200; 692000

474643 GA789000506
The value of Poisson's ratio in saturated soils and rocks stressed under undrained conditions
 BISHOP, A.W.; HIGHT, D.W.
 Geotechnique (London)
 1977
 27/3 P369-394
 GENTEI
 LANGUAGE: ENGLISH
 DESCRIPTORS: SOIL MECHANICS; ROCK MECHANICS; STATISTICAL ANALYSIS
 DESCRIPTOR CODES: 362000; 365000; 692000

468572 GA384001177
A 'most-squares' approach to crack spectra
 TIERNAN, M.; WARREN, N.
 CONF. DATES: 30 MAY TO 03 JUNE NO. 77 0065
 EOS Trans Am Geophys Union (Washington DC)
 1977
 58/6 PS/M
 LANGUAGE: CONFERENCE ABSTRACT
 DESCRIPTORS: FRACTURES; STATISTICAL ANALYSIS; EXPERIMENTAL ROCK MECHANICS
 DESCRIPTOR CODES: 733200; 692000; 365600

467608 GA384000246
A non-linear least-square fitting approach for determining activation energies for high temperature creep
 PARRISH, D.K.; GARGI, A.F.
 CONF. DATES: 30 MAY TO 03 JUNE NO. 77 0065
 EOS Trans Am Geophys Union (Washington DC)
 1977
 58/6 PS14
 LANGUAGE: CONFERENCE ABSTRACT
 DESCRIPTORS: ROCK MECHANICS; LABORATORY METHODS; STATISTICAL ANALYSIS; DEFORMATION
 DESCRIPTOR CODES: 365000; 820000; 692000; 731100

477692 GA384000447
The application of simple statistical graphic methods in engineering-geological exploration of fissuring
 DUBRASIK, R.
 Geol. Průzkum (Prague)
 1977
 19/5 P131-134
 GPRUZI
 LANGUAGE: CZECH
 DESCRIPTORS: ROCK MECHANICS; GRAPHICAL METHODS; FAULTING
 DESCRIPTOR CODES: 365000; 840000; 731600

456614 GA375000430
Quantification of rock structures and fabric
 BARTON, C.M.
 Lect. Serv. Div. App. Geomech CSIRO (MT Waverly)
 1975
 34
 LSDAGG
 LANGUAGE: ENGLISH
 DESCRIPTORS: ENGINEERING GEOLOGY; PHYSICAL PROPERTIES OF ROCKS; STATISTICAL ANALYSIS
 DESCRIPTOR CODES: 360000; 540300; 692000

435561 GA348002505
A statistical theory of the polyaxial strength of materials
 LUNDBORG, N.
 Proc. 3 Congr. ISRM (Denver)
 CONF. DATES: 01 SEPTEMBER TO 07 SEPTEMBER NO. 74-0002
 1974
 P180-185
 LANGUAGE: CONFERENCE PROCEEDINGS
 DESCRIPTORS: ROCK ENGINEERING PROPERTIES; STATISTICAL ANALYSIS; EXPERIMENTAL ROCK MECHANICS
 DESCRIPTOR CODES: 365100; 692000; 365600

DTIC: FUTURE GEODATABASE	74 82/May (Copr. GEOSYSTEMS) (Item	32 of 44) User 5208 1sep82	2239
<p>Discussion of KOTZIAS, C A. STAMATOPOULIS, AC Statistical quality control at Kastraki earth dam (J Geotech Eng Div (101/9)75 p837-853)</p> <p>Geotechnical Eng Div Proc Am Soc Civ Eng (New York) 1976</p> <p>102/3 p816</p> <p>LANGUAGE ENGLISH</p> <p>DESCRIPTORS EARTHWORKS; STATISTICAL ANALYSIS; SOIL MECHANICS</p> <p>AUXILIARY DESCRIPTORS GREECE</p> <p>DESCRIPTOR CODES 360400, 692000, 362000</p> <p>AUXILIARY DESCRIPTOR CODES 356000</p>			
<p>412284 GA324003927</p> <p>Discussion of KOTZIAS, PC & STAMATOPOULIS, AC Statistical quality control at Kastraki earth dam (J Geotech Eng Div (101/9)75 p837-853)</p> <p>Geotechnical Eng Div Proc Am Soc Civ Eng (New York) 1976</p> <p>102/3 p815</p> <p>LANGUAGE ENGLISH</p> <p>DESCRIPTORS EARTHWORKS; STATISTICAL ANALYSIS; SOIL MECHANICS</p> <p>AUXILIARY DESCRIPTORS GREECE</p> <p>DESCRIPTOR CODES 360400, 692000, 362000</p> <p>AUXILIARY DESCRIPTOR CODES 356000</p>			
<p>405656 GA320001423</p> <p>Statistics of liquefaction and SPT results</p> <p>CHRISTIAN, JI, SWIGER, WF</p> <p>J Geotech Eng Div Proc Am Soc Civ Eng (New York) 1975</p> <p>101/11 p1135-1150</p> <p>LANGUAGE ENGLISH</p> <p>DESCRIPTORS SOIL ENGINEERING PROBLEMS; STATISTICAL ANALYSIS</p> <p>EXPERIMENTAL SOIL MECHANICS; EARTHQUAKE ENGINEERING</p> <p>DESCRIPTOR CODES 362200, 692000, 362600, 367000</p>			
<p>405678 GA320001405</p> <p>Statistical quality control at Kastraki Earth Dam (Greece)</p> <p>KOTZIAS, PC, STAMATOPOULIS, AC</p> <p>J Geotech Eng Div Proc Am Soc Civ Eng (New York) 1975</p> <p>101/9 p817-857</p> <p>LANGUAGE ENGLISH</p>			
<p>396397 GA307002638</p> <p>Investigation of rocks by mathematical statistical methods</p> <p>SVIRIDOV, VV</p> <p>1975</p> <p>21P</p> <p>LANGUAGE RUSSIAN</p> <p>NOTES BOOKS</p> <p>DESCRIPTORS BOOKS; STATISTICAL ANALYSIS; ROCK MECHANICS</p> <p>DESCRIPTOR CODES 170000, 632000, 365000</p>			
<p>373716 GA295001918</p> <p>Multivariate statistical analysis in engineering geology</p> <p>KOMAROV, IS; KHAJIME, NM; BARENYSHEV, AP</p> <p>1976</p> <p>P125</p> <p>LANGUAGE RUSSIAN</p> <p>NOTES FORTHCOMING BOOKS</p> <p>DESCRIPTORS FORTHCOMING BOOKS; ENGINEERING GEOLOGY; MULTIVARIATE STATISTICS</p> <p>DESCRIPTOR CODES 131000, 360000, 692200</p>			
<p>361007 GA287000414</p> <p>A method for the application of soil mechanics to non-homogeneous soils</p> <p>MCANALLY, PA</p> <p>2 Aust NZ Conf Geomech (Brisbane) CONF. DATES 21 JULY TO 25 JULY NO 75-0064</p> <p>1975</p> <p>126 30</p> <p>LANGUAGE CONFERENCE PREPRINT</p> <p>DESCRIPTORS SOIL MECHANICS; SITE INVESTIGATIONS; STATISTICAL ANALYSIS</p> <p>DESCRIPTOR CODES 362000, 360100, 692000</p>			

354125 GA269004847
Comprehensive dissertation index supplement 1973, volume 2
(of 5) Sciences (astronomy, engineering, geology, mathematics
and statistics, physics)
1975
LANGUAGE ENGLISH
NOTES BOOKS-
DESCRIPTORS BOOKS; GUIDES TO THESES
DESCRIPTOR CODES 130000; 911900

354125 GA269004847
Attaining statistical reliability in models of random
properties of a continuous medium
KUZNETSOV, AP
Sov Min Sci (New York)
1973
9/5 P573-575
SWSCI
LANGUAGE ENGLISH
DESCRIPTORS EXPERIMENTAL ROCK MECHANICS
DESCRIPTOR CODES 365600

326506 GA245003110
Application of statistics in soil mechanics (In LEE, IK (Ed)
Soil mechanics - new horizons)
LUMB, P
1974
P44-111
LANGUAGE ENGLISH
DESCRIPTORS SOIL MECHANICS; GEOMATHEMATICS
DESCRIPTOR CODES 362000; 690000

322086 GA241001346
Guide to the application of statistical analysis of
experimental data in the study of the properties of rocks and
their diagenetic processes
MIRZADZHANZAD, AK; AGAEV, SG; ALIMAMEDOV, AF
1973
98P
LANGUAGE RUSSIAN
NOTES BOOKS-
DESCRIPTORS BOOKS; SAMPLING; STATISTICAL ANALYSIS, ROCK
MECHANICS
DESCRIPTOR CODES 130000; 691200; 692000; 365000

315683 GA233004297
Probability of earthquake occurrence estimated from results
of rock fracture experiments
HAGIMURA, Y
Tectonophysics (Amsterdam)

310862 GA229003673
Simplified procedures for the vector summation and
statistical analysis of spherically distributed point clusters
BARTON, CM
Tech Rep Div Appl Geomech CSIRO Aust (Mount Waver
1974
20 24P
TRDAG
LANGUAGE ENGLISH
DESCRIPTORS STATISTICAL ANALYSIS, ENGINEERING GEOLOGY
DESCRIPTOR CODES 682400; 365600

310862 GA229003673
Simplified procedures for the vector summation and
statistical analysis of spherically distributed point clusters
BARTON, CM
Tech Rep Div Appl Geomech CSIRO Aust (Mount Waver
1974
20 24P
TRDAG
LANGUAGE ENGLISH
DESCRIPTORS STATISTICAL ANALYSIS, ENGINEERING GEOLOGY
DESCRIPTOR CODES 682400; 365600

APPENDIX F: GPO MONTHLY CATALOGUE (FILE 66)

Print 2 5 1
 DIALOG File 66 CIO Monthly Catalog - Jul 1976 to Jun 1982 (Item 1 of 1) User 5708 1sep82

8014841 1 28 23-8414
Least squares calculation of horizontal stresses from more than three diametral deformations in vertical boreholes
 Buwalda, Wilbur I ; Agoston, James R
 United States : Bureau of Mines
 (Washington) : Dept. of the Interior, Bureau of Mines 1980
 1 p. : 27 cm.
 Report of investigations - Bureau of Mines ; 8414
 LCCN 79607970
 LC TN23 U43 no. 8414 ; TA70 DEWEY 622/.08 ; 624/.1513
 Bibliography p. 12
 Descriptors : Rock mechanics--Statistical methods ; Least squares ; Boring ;

APPENDIX G: GEOREF (FILE 89)

1126911 82-45645

Deformation restraint and the mechanics of soil behavior

Pitt, J. M.
 Iowa State Univ., Ames, IA, USA
 204p., 1981
 Subfile: B
 Degree Level: Doctoral
 Country of Publ.: United States
 Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
 Languages: English
 Availability: Univ. Microfilms
 Descriptors: foundations; soil mechanics; deformation;
 settlement; theoretical studies; bearing capacity; stress;
 strain; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1126906 82-45639

Plasticity modeling of soils and finite element applications

Mizuno, E.
 Purdue Univ., West Lafayette, IN, USA
 237p., 1981
 Subfile: B
 Degree Level: Doctoral
 Country of Publ.: United States
 Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
 Languages: English
 Availability: Univ. Microfilms
 Descriptors: soil mechanics; deformation; automatic data
 processing; theoretical studies; engineering geology;
 plasticity; finite element analysis; statistical methods;
 mathematical models; models
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1126897 82-45619

Three-dimensional stability analysis

Chen, R. J.
 Purdue Univ., West Lafayette, IN, USA
 323p., 1981
 Subfile: B
 Degree Level: Doctoral
 Country of Publ.: United States
 Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
 Languages: English
 Availability: Univ. Microfilms
 Descriptors: slope stability; automatic data processing;
 theoretical studies; engineering geology; finite element
 analysis; statistical methods; computer programs; FESPOL;
 three-dimensional models; models
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1126812 82-45486

Stochastic trigger model for flood peaks; 2. Application of the model to the flood peaks of Goksu-Karahacili

Kavvas, M. L.
 Univ. Ky., Dep. Civ. Eng., Lexington, KY, USA
 Water Resources Research 18: 2, 393-411p., 1982
 CODEN: WRERAO ISSN: 0043-1397 4 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.: 3 tables
 Latitude: N360000; N370000 Longitude: E0343000; E0320000
 Descriptors: Turkey; hydrology; engineering geology;
 surveys; waterways; geologic hazards; floods;
 mathematical models; models; stochastic processes;
 statistical analysis; rivers and streams; Middle East;
 design; Goksu River; Karahacili; Taurus Mountains
 Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

1126811 82-45485

Stochastic trigger model for flood peaks; 1. Development of the model

Kavvas, M. L.
 Univ. Ky., Dep. Civ. Eng., Lexington, KY, USA
 Water Resources Research 18: 2, 383-398p., 1982
 CODEN: WRERAO ISSN: 0043-1397 25 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.:
 Latitude: N360000; N370000 Longitude: E0343000; E0320000
 Descriptors: Turkey; hydrology; geologic hazards;
 engineering geology; rivers and streams; floods; waterways;
 models; mathematical models; stochastic processes;
 statistical analysis; Middle East; design; Goksu River;
 Karahacili; Taurus Mountains
 Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

Descriptors: India; engineering geology; earthquakes;
geologic hazards; Asia; Northeastern India; probability;
magnitude; prediction; seismic risk
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1126105 82-45797

A finite element solution of non-linear creep problems in rocks

Giorda, G.
Tech. Univ. Milan, Dep. Struct. Eng., Milano, IIA
International Journal of Rock Mechanics and Mining Sciences
& Geomechanics Abstracts 18, 1, 35-46p., 1981
ISSN 0148-9062 22 REFS.

Subfile B
Country of Publ.: International
Doc Type SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.

Descriptors: deformation; rock mechanics; theoretical
studies; creep; rheology; finite element analysis;
statistical methods; rocks; stress; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1125309 82-45702

Effect of genetic factors on the closeness of correlation between properties

Bekker, V. I.
Moscow University Geology Bulletin 36, 4, 55-59p., 1981
CODEN MUGRD4 ISSN: 0145-8752 6 REFS.

Subfile B
Country of Publ.: United States
Doc Type SERIAL Bibliographic Level: ANALYTIC
Languages: English

Note: Translated from Vestn. Mosk. Univ., Geol., Vol. 36,
No. 4, p. 55-60, 1981, illus., 2 tables
Descriptors: soil mechanics; soils; USSR; settlement;
pedogenesis; engineering geology; experimental studies;
physical properties; statistical analysis; loess; clastic
sediments; loam; compression tests; materials; properties;
alluvium; eluvium; Urenburg; Sakmara River floodplain
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1124406 82-45805

Probabilistic earthquake expectancy in the Northeast Indian region

Goswami, H. C.; Sarma, S. K.
Gauhati Univ., Dep. Environ. Sci., Gauhati, Assam, IND
Bulletin of the Seismological Society of America 72, 3,
999-1009p., 1982
CODEN BSSMAP ISSN 0037-1106 15 REFS.

Subfile B
Country of Publ.: United States
Doc Type SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., 4 tables, sketch map
Latitude N214000; N293500 Longitude E0972000; E0880000

1120420 82-41155

Analysis of ground motion of soil caused by the exploitation of mining and use of explosions; a study of the use of explosions; report

Sugawara, K.; Kimura, O.; Ohara, Y.; Okamura, H.
Kumamoto Univ., Fac. Eng., JPN
Nippon Kogyo Kaishi 97, 1115, 19-25p., 1981
ISSN: 0369-4194 6 REFS.

Subfile B
Country of Publ.: Japan
Doc Type SERIAL Bibliographic Level: ANALYTIC
Languages: Japanese Summary Languages: English
illus.

Latitude: N330700; N330700 Longitude: E1303600; E1303600
Descriptors: Japan; mining geology; engineering geology;
applications; explosions; ground motion; mines; coal;
organic residues; strain; finite element analysis;
statistical methods; Kyushu; Asia; Mieke Mine
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1120213 82-40981

Metodica, algoritm si program de calcul al valorilor medii de distributie bidimensionala pentru parametrii geologici minieri cu calculatorul electronic
Method, algorithm and calculation program for mean values of bidimensional distribution for geological parameters of mines, using electronic computers

Enache, C.; Buleandra, I.
ICPML, Craiova, ROM; ICPE, ROM
Mine Petrol Gaze 27, 1, 5-9p., 1976
CODEN MPGADY ISSN 0250-3115 6 REFS.

Subfile B
Country of Publ.: Romania
Doc Type SERIAL Bibliographic Level: ANALYTIC
Languages: Romanian Summary Languages: English
illus., sketch maps

Descriptors: mining geology; automatic data processing;
maps; methods; engineering geology; cartography; mines;
algorithms; computer programs; statistical analysis;
graphic display
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

materials; pressure; load pressure; compaction
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1119260 82-41038

Analysis of footings on vesicular laterite

John, P. V.; Raju, V. S.
Coll. Eng. Dep. Civ. Eng., Trivandrum, IND
Geotech. Eng. 6: 2, 119, 127p., 1975
CODEN: GTEG82 ISSN: 0046-5828 25 REFS

Subfile B
Country of Publ.: Thailand
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table

Descriptors: *soil mechanics; *foundations; *soils;
settlement; soil group; materials; properties; laterites;
footings; analysis; finite element analysis; statistical
methods; triaxial tests; load tests; bearing capacity;
methods; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1119039 82-41169

Trap-door problem with dry sand: a statistical approach based upon model test kinematics

Vardoulakis, I.; Graf, B.; Gudehus, G.
Univ. Karlsruhe, Inst. Soil Mech. Rock Mech., Karlsruhe, DEU
International Journal for Numerical and Analytical Methods
in Geomechanics 5: 1, 57-78p., 1981
ISSN: 0363-9061 15 REFS

Subfile: B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table
Descriptors: *soil mechanics; deformation; kinematics;
physical models; models; statistical analysis; sand;
clastic sediments; gravity sliding
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1119036 82-41170

An accuracy condition for consolidation by finite elements

Verruitt, A.; Verruitt, A.
Univ. Delft, DLD
Int. J. Numer. Anal. Methods Geomech. 5: 1, 1-14p.,
1981
ISSN: 0363-9061 5 REFS

Subfile: B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.

Descriptors: *soil mechanics; theoretical studies;
consolidation; finite element analysis; statistical methods;
mathematical models; models; pore pressure; elastic

1118885 82-40851

A mixed finite element procedure for soil-structure interaction including construction sequences

Lighner, J. G., III
Virginia Polytech. Inst. and State Univ., Blacksburg, VA,
USA

248p., 1981
Subfile B
Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Descriptors: *soil mechanics; earth pressure; finite
element analysis; statistical methods; excavations; tunnels
stress; soil-structure interface
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1118884 82-40850

Free surface flow and stress analysis of earth dams

Li, G. C.
Virginia Polytech. Inst. and State Univ., Blacksburg, VA,
USA

232p., 1981
Subfile B
Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Descriptors: *dams; *soil mechanics; design; deformation
earth dams; stress; theoretical studies; finite element
analysis; statistical methods; seepage
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1118883 82-40834

An application of the finite element method for simulation of underground excavations and support systems

Erani, J. M.
Virginia Polytech. Inst and State Univ., Blacksburg, VA, USA

336p., 1981

Subfile B

Degree Level: Doctoral

Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Availability: Univ. Microfilms

Latitude: N33500, W740000 Longitude: W0841500, W0843500

Descriptors: *New Mexico; *Georgia; *soil mechanics; engineering geology; deformation; underground installations; tunnels; stress; Fulton County; United States; York Canyon Mine; excavations; simulation; mathematical models; models; finite element analysis; statistical methods; Atlanta

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1118872 82-40858

Source parameter inversion of a reservoir-induced seismic sequence, Lake Kariba, Africa; September 1983 - August 1974; a reassessment of triggering mechanisms

Pavlin, G. B.
Pennsylvania State Univ., University Park, PA, USA

293p., 1981

Subfile B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Availability: Univ. Microfilms

Latitude: S180000, S150000 Longitude: E0300000, E0260000
Descriptors: *Zimbabwe; *engineering geology; earthquakes; Africa; induced earthquakes; reservoirs; geologic hazards; seismic sources; inverse problem; focal mechanism; seismic moment; discriminant analysis; statistical methods; Lake Kariba

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1118392 82-40855

Characterization and computer simulation modelling of suspended sediment transport in Colusa Basin drain, California

Mirbagheri-Firoozabad, S. A.
Univ. of California, Davis, CA, USA

333p., 1981

Subfile B

Degree Level: Doctoral

Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Latitude: N345500, N392500 Longitude: W1224500, W1224500
Descriptors: *California; engineering geology; waterways; Colusa County; United States; Northern California; automatic data processing; mathematical models; models; drainage; suspended materials; stream transport; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1118789 82-40830

Effect of tension cutoff between the soil and foundation on structural response

Burriss, R. L.
Univ. of Maryland, College Park, MD, USA

154p., 1981

Subfile E

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Availability: Univ. Microfilms
Descriptors: *soil mechanics; *foundations; deformation; theoretical studies; tension; soil-structure interface; earth pressure; finite element analysis; statistical methods; collectionless materials; response
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1117955 82 41021

New models for rock joints and interfaces

Heuze, F. E.; Barbour, T. G.
Lawrence Livermore Natl. Lab., Livermore, CA, USA
Journal of the Geotechnical Engineering Division 108 G15,
757-776p., 1982
CODEN AJGEB6 ISSN: 0093-6405 31 REFS
Subfile B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

illus.: 2 tables
Descriptors: rock mechanics; materials; properties;
structural analysis; finite element analysis; statistical
methods; Poisson's ratio; elastic constants; equations;
shear strength; stress; materials; properties; isotropic
materials; dilatation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1117935 82-40889

Interface properties of sand

Acar, Y. B.; Durgunoglu, H. T.; Tuncay, M. T.
La State Univ., Dep. Civ. Eng., Baton Rouge, LA, USA;
Bogazici Univ., Istanbul, TUR
Journal of the Geotechnical Engineering Division 108 G14,
648-654p., 1982
CODEN AJGEB6 ISSN: 0093-6405 10 REFS
Subfile B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

illus.
Descriptors: soil mechanics; foundations; materials;
properties; design; sand; finite element analysis;
materials; properties; clastic sediments; roughness; shear;
stress; interfaces; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1117145 82 42458

Statistical analysis of density and porosity of subsurface rock samples from Cauvery Basin

Koithara, J.; Bhatt, J. S.; Raj, H.
Oil Nat. Gas Comm., Baroda, IND

Coastal sedimentaries of India south of 18 degrees N Latitude

Venkatappa, R. S. (EDITOR)
Workshop on coastal sedimentaries of India south of 18
degrees N Latitude, India, Mar. 28-30, 1976
India, Oil Nat. Gas Comm., Bull. 17: 1, 101-107p., 1980
CODEN IOGEBY 3 REFS

Subfile B
Country of Publ.: India
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.

Descriptors: India; engineering geology; petroleum
engineering; reservoir rocks; Asia; density; porosity;
Cauvery Basin; cores; statistical analysis; sandstone;
clastic rocks
Section Headings: 29 (ECONOMIC GEOLOGY, ENERGY SOURCES)

1116953 82-36234

A nonlinear seismic design procedure for nuclear facilities

Kamil, H.; Bertero, V. V.
Eng. Decision Anal. Co., Palo Alto, CA, USA; Univ. Calif.,
Berkeley, Dep. Civ. Eng., USA

Earthquake engineering research at Berkeley, 1976

University of California at Berkeley, College of
Engineering, Earthquake Engineering Center, Berkeley, CA, USA
Sixth world conference on earthquake engineering;
Earthquake engineering research at Berkeley, 1976, New
Delhi, India, Jan. 10-14, 1977
Report - Earthquake Engineering Research Center, College of
Engineering, University of California, Berkeley, California
77/11, 91-96p., 1977
ISSN 0271-0323 8 REFS.

Subfile B
Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English
Descriptors: geologic hazards; earthquakes; automatic
data processing; nuclear facilities; effects; seismic
response; engineering geology; seismic risk; design;
radioactive waste; reliability; statistical analysis; shear;
finite element analysis; statistical methods; probability
failures
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1116951 82 36170

Evaluation of methods for earthquake analysis of structure-soil interaction

Gutierrez, J. A.; Chopra, A. K.
Univ. Costa Rica, San Jose, CRI; Univ. Calif. Berkeley, Dep. Civ. Eng., USA

Earthquake engineering research at Berkeley, 1978

University of California at Berkeley, College of Engineering, Earthquake Engineering Center, Berkeley, CA, USA
Sixth world conference on earthquake engineering : Earthquake engineering research at Berkeley, 1978, New Delhi, India, Jan. 10-14, 1977
Report - Earthquake Engineering Research Center, College of Engineering, University of California, Berkeley, California 77/11, 47-51p., 1977
ISSN: 0271-0323 11 REFS.
Subfile B

Country of Publ.: United States
Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
Descriptors *Geologic hazards; *soil mechanics; *foundations; earthquakes; seismic response; materials; properties; prediction; seismic risk; effects; materials; properties; half space; finite element analysis; statistical methods; Fourier analysis; elasticity
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1116948 82 36272

Characteristics of three-dimensional ground motions along principal axes, San Fernando earthquake

Kubo, T.; Penzien, J.
Univ. Tokyo, Tokyo, JPN; Univ. Calif. Berkeley, Dep. Struct. Eng., USA

Earthquake engineering research at Berkeley, 1978

University of California at Berkeley, College of Engineering, Earthquake Engineering Center, Berkeley, CA, USA
Sixth world conference on earthquake engineering : Earthquake engineering research at Berkeley, 1978, New Delhi, India, Jan. 10-14, 1977
Report - Earthquake Engineering Research Center, College of Engineering, University of California, Berkeley, California 77/11, 1-6p., 1977
ISSN: 0271-0323 10 REFS.
Subfile B

Country of Publ.: United States
Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
illus., sketch map
Latitude N340000, N342000 Longitude W1182000, W1182500
Descriptions *California; engineering geology

earthquakes; United States; ground motion; three-dimensional models; statistical analysis; stochastic processes; San Fernando earthquake; intensity; frequency; Los Angeles County; Fourier analysis; stick-slip; elastic waves

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1116573 82 35202

Experimental studies and finite-element analysis of the seismicity of North China Plain

Luo Huizhen; Song Huizhen; Guo Caihua; Li Jianguo
State Seismol. Bur., Inst. Geol., Beijing, CHN; Tohoku Univ., JPN

Earthquake prediction

Hales, A. I. (EDITOR); Suzuki, Z. (EDITOR)
Univ. Tex. at Dallas, Programs Geosci., Richardson, TX, USA
Inter Union Commission on Geodynamics/International Association of Seismology and Physics of the Earth's Interior Symposium on earthquake prediction, a part of the International Union of Geodesy and Geophysics, 17th general assembly, Canberra, Australia, Dec. 13-14, 1979
Tectonophysics 85 1-2, 75-89p., 1982
CUPEN T100AM ISSN 0040 1951 13 REFS.
Subfile B

Country of Publ.: Netherlands
Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
illus., sketch map
Latitude N370000, N420000 Longitude E1250000, E1150000
Descriptors *China; *seismology; *rock mechanics; *deformation; earthquakes; experimental studies; mechanism; shear stress; Asia; North China Plain; finite element analysis; statistical methods; isostasy; plasticity; upper mantle; mantle; seismicity; prediction; laboratory studies; failures; creep; compression; tension
Section Headings 19 (GEOPHYSICS, SEISMOLOGY)

1114806 82 36096

Axisymmetric soil-structure interaction by substructure approach

Paul, P. K.; Lee, E. J.
Wash. Univ., St. Louis, MO, USA

Proceedings of the International conference on recent advances in geotechnical earthquake engineering and soil dynamics, Vol. III

Recent advances in geotechnical earthquake engineering and soil dynamics. St. Louis, MO, United States, Apr 26 May 3 1981
Publ. Univ. Mo.
1042 1052p., 1982
14 REFS.

Subfile B
Country of Publ.: United States
Doc Type: BOOK: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus

Descriptors: soil mechanics; materials; properties; foundations; materials; properties; finite element analysis; statistical methods
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1114807 82 37482

Geothermal reservoir modeling: a review of approaches

Castanier, L.; Sanyal, S. K.
Stanford Univ., Stanford, CA, USA

Geothermal; energy for the eighties

Brown, C. W. (chairperson)
Phillips Pet. Co., USA
Geothermal Resources Council annual meeting, Geothermal energy for the eighties, Salt Lake City, UT, United States, Sept 9-11, 1980
Transactions: Geothermal Resources Council 4, 313 316p., 1980
ISBN 0-933 5931
150W 0-934412-54-5 26 REFS.

Subfile B
Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus

Descriptors: geothermal energy; mathematical geology; exploration; theoretical studies; development; simulation; reservoir rocks; models; finite element analysis; statistical methods; engineering geology
Section Headings 29 (ECONOMIC GEOLOGY, ENER. SOURCES)

1114886 82-36477

Cape model

Shrivardhan, H. J.; Desai, C. S.

Evaluation of constitutive parameters for geological materials

Desai, C. S. (EDITOR); Lade, P. V.; Shrivardhan, H. J.; Sture, S.
Symposium on Implementation of computer procedures and stress/strain laws in geotechnical engineering: evaluation of constitutive parameters for geological materials. Chicago, IL, United States, Aug 3-6, 1981
Publ. Symp. Implementation Comput. Proc. and Stress/Strain Laws Geotech. Eng.
4 14 21p., 1981
7 REFS.

Subfile B
Country of Publ.: United States
Doc Type: BOOK: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus

Descriptors: automatic data processing; soil mechanics; engineering geology; deformation; plasticity; mathematical models; failures; sand; clastic sediments; clay; stress; strain; triaxial tests; Poisson's ratio; elastic constants; finite element analysis; statistical methods
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1114801 82 35905

Strain distribution around underground openings: statistical methods to compile and correlate rock properties, computer techniques

Nahar, P.
Purdue Univ., Sch. Civ. Eng., Lafayette, IN, USA
133p., 1970
Subfile B

Doc Type: REPORT Bibliographic Level: MONOGRAPHIC
Languages: English
Report No. 4

Availability: Army, Off. Chief Eng., Washington, DC, United States

Descriptors: automatic data processing; rock mechanics; engineering geology; materials; properties; strain; materials; properties
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1114626 R2 36087

Numerical models for track support structures

Beatty, C. S.; Stewardson, H. J.
Univ. Ariz.; Dep. Civ. Eng.; Tucson, AZ, USA; W. VA. Univ., Morgantown, WV, USA
Journal of the Geotechnical Engineering Division 108 G13, 461-480p., 1982
GDEP A106P6 ISSN 0093-6105 31 REFS.

Subj. B
Country of Publ. United States
Doc. Type SERIAL Bibliographic Level ANALYTIC
Languages English
illus.

Descriptors: Colorado; engineering geology; foundations; structures; finite element analysis; statistical methods; three dimensional models; models; United States; Pueblo; Transportation Test Center; behavior
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1114627 R2 36119

Probabilistic analysis of deposit liquefaction

Faris, W. J.; Veneziano, D.
Mass Inst. Technol.; Dep. Civ. Eng.; Cambridge, MA, USA
Journal of the Geotechnical Engineering Division 108 G13, 745-770p., 1982
GDEP A106P6 ISSN 0093-6105 13 REFS.

Subj. B
Country of Publ. United States
Doc. Type SERIAL Bibliographic Level ANALYTIC
Languages English
illus. 1 table

Descriptors: soil mechanics; liquefaction; mechanical properties; liquefaction potential; spatial variations; one dimensional models; models; probability; testing; production; pore pressure
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1114145 R2 36226

Seismic resistance capacity evaluation of existing spent nuclear fuel storage racks

Johnson, N. F.; Wallis, J. C.; Haighway, C. J.
Sci. Appl.; Oak Ridge, TN, USA; Tenn. Val. Auth., Knoxville, TN, USA

Proceedings of Earthquakes and earthquake engineering: the eastern United States; two volumes

Beaver, J. F. (Chairperson); Homer, R. S. (Chairperson)
Union Carbide Corp.; Nuc. Div.; Oak Ridge, TN, USA
Assessing the hazard; evaluating the risk; Earthquakes and earthquake engineering: the eastern United States; Knoxville, TN, United States, Sept. 14-16, 1981

Publ. Ann Arbor Sci. Publ.
R37-R57p., 1981
ISBN 0-250-40496-6 4 REFS.
Subj. B

Country of Publ. United States
Doc. Type BOOK; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC

Language English
illus. 6 tables
Descriptors: New York; engineering geology; earthquakes; United States; West Valley; seismicity; foundations; finite element analysis; statistical methods; deformation; automatic data processing; design; analysis; seismic response
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1114278 R2-35914

An oilspill risk analysis for the Beaufort Sea, Alaska (proposed sale 71) outer continental shelf lease area

Samuels, W. B.; Hopkins, D.; Laufner, K. J.
Open-File Report (United States Geological Survey, 1973) R2 0013, 11p., 1982
GDEP XGR048 ISSN 0196-1497 19 REFS.

Subj. R
Country of Publ. United States
Doc. Type SERIAL REPORT Bibliographic Level MONOGRAPHIC
Languages English
Availability: U. S. Geol. Surv., Open-File Serv. Sect., West Distrib. Branch, Denver, CO, United States
illus. 24 tables, sketch maps

Latitude: N700000; N713000 Longitude: W1440000; W1560000
Descriptors: Alaska; Arctic Ocean; oceanography; environmental geology; engineering geology; continental shelf; pollution; geologic hazards; USGS; United States; outer shelf; Beaufort Sea; oil spills; petroleum; probability; statistical analysis; land leases
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

111162 82 36049
New stability method for embankments on clay foundations
 Charous, R. P.

Can. J. Civ. Eng., Montreal, PQ, CAN
 Canadian Geotechnical Journal=Revue
 Geotechnique, 19, 1, 44 Apr., 1982
 CODEN BIEG86 ISSN 0708-3674 17 REFS

Subfile B
 Country of Publ.: Canada
 Doc Type: SERIAL; Bibliographic Level: ANALYTIC
 Languages: English Summary Languages: French
 Illustr.: 1 table
 Descriptors: *soil mechanics; *slope stability; materials,
 properties; embankments; clay; foundations; materials,
 properties; clastic sediments; shear strength; failures;
 statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

111191 82 36475

**L'application de la methode des elements finis dans la
 stabilite des talus**
 The application of the finite element method to landslide
 analysis

Smekal, J.; Spottova, V.; Tyls, V.
 Univ. Tech., Prague, CSK

Landslides and other mass movements

Wolters, R. (EDITOR)
 Landslides and other mass movements, Prague,
 Czechoslovakia, Sept. 15-16, 1977
 Int. Assoc. Eng. Geol., Bull., 16, 241-244p., 1977
 CODEN BIEG86 ISSN 0074-1612 5 REFS.

Subfile B
 Country of Publ.: International
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: French Summary Languages: English
 Illustr.: 1 map
 Descriptors: *Czechoslovakia; engineering geology; slope
 stability; Europe; Poland; Dnieper; landslides; finite
 element analysis; statistical methods; applications
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

111192 82 36232

**Estimation of the stress-deformation state of slopes in
 stratified sedimentary rocks by the finite element method**

Kalinin, E. V.; Zuyev, V. V.
 Moscow State Univ. Dep. Eng. Geol. Found. Eng., Moscow, USSR

Landslides and other mass movements

Wolters, R. (EDITOR)

Landslides and other mass movements, Prague,
 Czechoslovakia, Sept. 15-16, 1977
 Int. Assoc. Eng. Geol., Bull., 16, 219-221p., 1977
 CODEN BIEG86 ISSN 0074-1612 2 REFS.

Subfile B
 Country of Publ.: International
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English Summary Languages: French
 Illustr.: 1

Descriptors: *rock mechanics; *slope stability;
 information; landslides; stress; finite element analysis;
 statistical methods; sedimentary rocks; Zuyev, V. V.
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

111196 82 36326

**Building-up a landslide area situated on the boundary of the
 Carpathian Fore-deep**

Mencl, V.; Papousek, Z.; Paseka, A.
 Geotest, Brno, CSK

Landslides and other mass movements

Wolters, R. (EDITOR)
 Landslides and other mass movements, Prague,
 Czechoslovakia, Sept. 15-16, 1977
 Int. Assoc. Eng. Geol., Bull., 16, 174-176p., 1977
 CODEN BIEG86 ISSN 0074-1612 3 REFS.

Subfile B
 Country of Publ.: International
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English Summary Languages: French
 Illustr.: 1 sketch map

Descriptors: *Czechoslovakia; engineering geology; slope
 stability; Europe; Bystrc; landslides; Carpathian Foredeep;
 clay soils; soils; pits; finite element analysis;
 statistical methods; Moravia; faults; drainage; boreholes;
 Brno
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1110911 82-30847

Quantificacao do efeito da temperatura nas estrancas de valas escoradas
Quantification of thermal effects in struts of braced excavations

Marcelo F. Costa. Panamerican Conference on Soil Mechanics and Foundation Engineering, Lima, Peru, Dec 1979. Memorias del Congreso Panamericano de Mecanica de Suelos e Ingenieria de Fundaciones. Proceedings of the Panamerican Conference on Soil Mechanics and Foundation Engineering 6, Vol. 3, 437p., 1979.

Subfile B
 Country of Publ.: Argentina
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: Portuguese Summary Languages: English
 Latitude: N240000; S230000 Longitude: W04630'00; W04700'00
 Descriptors: Brazil; soil mechanics; engineering geology; theoretical studies; load pressure; South America; Sao Paulo; Sao Paulo City; earth pressure; finite element analysis; statistical methods; temperature; thermal effects; excavations; subways; tunnels
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1111176 82-30587

Aplicacion de programas no restringidos de elementos finitos a la interaccion suelo, fundacion, superestructura
Application of unrestricted finite element programs to soil, foundation and superstructure interaction

Bolonesi, A. J. L. Univ. E. Aires, Geotec., Buenos Aires, ARG. Sixth Panamerican Conference on Soil Mechanics and Foundation Engineering, Lima, Peru, Dec 1979. Memorias del Congreso Panamericano de Mecanica de Suelos e Ingenieria de Fundaciones. Proceedings of the Panamerican Conference on Soil Mechanics and Foundation Engineering 6, Vol. 3, 269 281p., 1979.

Subfile B
 Country of Publ.: Argentina
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: Spanish
 Descriptors: soil mechanics; theoretical studies; finite element analysis; statistical methods; foundations; earth pressure; soil structure interface
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1110911 82-30635

Mixed finite element methods for miscible displacement problems in porous media

Barlow, B. L.; Ewing, R. E.; Wheeler, M. F. Exxon Prod. Res. Co., USA; Mobil Res. and Dev. Corp., USA

Proceedings: Sixth SPE symposium on reservoir simulation

Anonymous
 Sixth SPE Symposium on Reservoir Simulation, New Orleans, LA, United States, Feb 1-3, 1982

Proceedings: Symposium on Reservoir Simulation 6, 137-145p., 1982

ISSN 0272-2534 20 REFS.

Subfile B

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

Note: SPE 10501, illus.

Descriptors: engineering geology; petroleum engineering; mathematical models; finite element analysis; statistical methods; porous materials; reservoir locks; mathematical methods; Darcy velocity; models; simulation
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1110888 82-31031

Optimizatsiya ob'yemov burovyykh rabot pri zavershenii razvedki mestorozhdeniya
Optimizing the volume of drilling work while completing deposit exploration

Vasil'yev, V. B.; Alekseyev, Y. Y.; Kulichkova, L. B. Neftegornaya Geologiya i Geofizika 1981, 12, 20-22p. 1981

CODEN: NGRSAX ISSN 0028-1182

Subfile B

Country of Publ.: Union of Soviet Socialist Republics

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: Russian

Descriptors: engineering geology; automatic data processing; petroleum; petroleum engineering; exploration production; statistical analysis; equations; recovery
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

110697 82 31001

Využití vypočetní techniky při registraci sesuvů v CSR
The use of computer methods in a central register of
landslide data in Czechoslovakia

Spurek, M

Geol. Průzkum 20 2 312301, 44-46p., 1978

CODEN: GYDPAW ISSN 0016-772X

Subfile B

Country of Publ.: Czechoslovakia

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Czech Summary Languages: English

illus.: 2 tables, sketch map

Descriptors: *Czechoslovakia; *automatic data processing; engineering geology; slope stability; Europe; landslides; data storage; statistical analysis; Geofond; Prague; data bases; geologic hazards; Bohemia; Moravia

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

110709 82 30616

Probability of failure and safety factors in stability of
natural slopes

Chen, H. F. Subalambay, M. R. V

Univ. Singapore, Singapore, SGP

Proceedings, International symposium on landslides; Vol. 1

Seminarian, C. G. (Editor)

International symposium on landslides, New Delhi, India,

Apr. 2-11, 1980

Publ. South Pakistan

263 266p., 1980

9 REFS

Subfile C

Country of Publ.: India

Doc Type: BOOK CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.: 2 tables

Descriptors: *Singapore; engineering geology; slope stability; landslides; failures; techniques; case studies; Asia

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

110711 82 30617

Räumliche Berechnung von Spannungen und Verformungen im
Bereich der Ortbrüst von Tunnelbauwerken
Three dimensional computation of strain and deformation in
the tunnel face region

Compton, S

RWTH Aachen, DEU

4 Nationale Tagung ueber Felsmechanik

The Fourth national congress on rock mechanics

Wittke, W. (EDITOR)

4. Nationale Tagung ueber Felsmechanik, Aachen, Germany,

Federal Republic of, May 5-6, 1980

Nationale Tagung ueber Felsmechanik 4, 409-439p., 1980

13 REFS

Subfile B

Country of Publ.: Germany, Federal Republic of

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: German Summary Languages: English

illus.

Descriptors: *tunnels; theoretical studies; stress; deformation; mathematical models; models; elasticity; anisotropy; finite element analysis; statistical methods; three-dimensional models

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1108206 82 30920

Ein Berechnungsverfahren zur Untersuchung der dynamischen
Beanspruchung von Felsbauten
Methods of calculation in the investigation of dynamic
loading in rock structures

Plischke, B

RWTH, Aachen, DEU

4. Nationale Tagung ueber Felsmechanik

The Fourth national congress on rock mechanics

Wittke, W. (EDITOR)

4. Nationale Tagung ueber Felsmechanik, Aachen, Germany,

Federal Republic of, May 5-6, 1980

Nationale Tagung ueber Felsmechanik 4, 259-277p., 1980

9 REFS

Subfile B

Country of Publ.: Germany, Federal Republic of

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: German Summary Languages: English

illus.

Descriptors: *automatic data processing; rock mechanics; engineering geology; deformation; loading; tunnels; caverns; underground installations; finite element analysis; statistical methods; dams; slopes; three dimensional models; models; algorithms

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1107856 82-30486

Behaviour of the Bay Area Rapid Transit tunnels through the Hayward Fault

Provini, J. R.
Univ. of California, Berkeley, CA, USA
22pp., 1981
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English

Availability: Univ. Microfilms
Latitude: N374500; Longitude: W1221000; W1222000
Description: California; engineering geology; tunnels; Alameda County; United States; San Francisco Bay region; Central California; Berkeley; Hayward Fault; active faults; faults; Bay Area Rapid Transit; subways; finite element analysis; statistical methods; rock mechanics; geologic hazards
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1107840 82-30521

Modelling of soil-structure interaction by finite and infinite elements

Medina-Melo, F. J.
Univ. of California, Berkeley, CA, USA
53p., 1981
Subfile: F

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English

Availability: Univ. Microfilms
Descriptors: soil mechanics; elasticity; seismic response; theoretical studies; finite element analysis; statistical methods; elastic waves; propagation; soil-structure reactions; soil dynamics; mathematical models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1107839 82-30513

Finite element analysis of interacting soil-structure-fluid systems with local nonlinearities

Khalvati, M.
Univ. of California, Berkeley, CA, USA
215p., 1981
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English

Availability: Univ. Microfilms
Descriptors: soil mechanics; theoretical studies; seismic response; geologic hazards; joints; fractures; S waves; propagation; fluid phases; soil dynamics; ground motion; soil-structure reactions; finite element analysis; statistical methods; elasticity; mathematical models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1107838 82-30510

A simplified procedure for reliability analysis in geotechnical engineering

Howland, J. D.
Rensselaer Polytech. Inst., Troy, NY, USA
226p., 1981
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English

Availability: Univ. Microfilms
Descriptors: geologic hazards; engineering geology; site exploration; statistical analysis; slope stability; soil mechanics; geotechnical engineering; reliability
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1106487 82-30590

Ground control for shallow tunnels by soil grouting/discussion

Rochert, K. W.; Klapperich, H.
Tech. Univ. Berlin, Civ. Eng. Dep., Berlin, DEU
Journal of the Geotechnical Engineering Division 107: GT12, 1745p., 1981
CODEN: JGUEB6 ISSN 0093-6405 2 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Note: For reference to original article, see Int. J. Y. and Clough, G. W., J. Geotech. Eng. Div., Am. Soc. Civ. Eng., Vol. 106, No. 9, 1980.

Descriptors: soil mechanics; tunnels; deformation; stability; loading; grouting; creep; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1106484 82 30767

Lateral pile response during earthquakes

McGraw, J. J. Kraft, L. M. Jr.
McClelland Eng., Houston, TX, USA

Journal of the Geotechnical Engineering Division 107: G112,
1973 1731p., 1981

CODEN: JGGER6 ISSN 0093-6405 56 REFS.

Subfile B

Country of Publ.: United States

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages English

illus., 1 table

Descriptors: *soil mechanics; *foundations; *earthquakes; materials; properties; piles; effects; liquefaction; stability; pore pressure; cohesionless materials; finite element analysis; statistical methods; Poisson's ratio; elastic constants; materials; properties.
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1106479 82 30768

Field measurements of an earth support system

Shen, C. K.; Bang, S.; Romstad, K. M.; Kulchin, L.; DeNatale, J. S.

Univ. Calif., Dep. Civ. Eng., Davis, CA, USA; Univ. Notre

Dame, Notre Dame, USA

Journal of the Geotechnical Engineering Division 107: G112,
1973 1642p., 1981

CODEN: JGGER6 ISSN 0093-6405 10 REFS.

Subfile B

Country of Publ.: United States

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages English

1 table

Descriptors: *Oregon; *soil mechanics; *California; engineering geology; applications; foundations; United States; Portland; Davis; excavations; finite element analysis; statistical methods; ground motion.
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1106387 82 30898

Využitie jednotkových statistických grafických metod pri inžinierskogeologickom výskume puklinovitosti
The application of simple statistical graphic methods in the engineering geological exploration of fissurization

Dudrácik, R.; Hanzušová, H.

Geol. Průltom 19: 5, 131 134p., 1977

CODEN: GEPAN ISSN 0016-772X

Subfile B

Country of Publ.: Czechoslovakia

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages Czech Summary Languages English

illus., 2 tables
Descriptors: *Czechoslovakia; *structural analysis; structural geology; fractures; statistical analysis; graphic methods; granodiorite; granite-granodiorite family; Europe; engineering geology; techniques; site exploration; Lambertov; preferred orientation.
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1106172 82-30656

O primenení korelačního-regresionního analýzy v inženýrsko-geologické praxi (na příkladě otěsnění prosadnosti lesových porod Předkavaz'ya)
Applying a correlation-regression analysis to engineering geology practice: slumped loess rocks of the Caucasus Foreland

Dikovskiy, A. L.
Vyssh. Uchebn. Zaved., Izv., Geol. Razved., 1979: 8, 59-61
p., 1979

CODEN: IJUGAF ISSN: 0016-7762 8 REFS.

Subfile B

Country of Publ.: Union of Soviet Socialist Republics

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages Russian

Descriptors: USSR; *automatic data processing; engineering geology; slope stability; Caucasus Foreland; regression analysis; loess; clastic sediments; statistical analysis; Caucasus; slumping.
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1105216 82-24083

Morphological equations based on variational principles

Huachu, S.; Ratuca, D.
Hydraul. Eng. Res. Sta., Bucharest, ROM

Proceedings of the International symposium on river sedimentation

Li Rongting (chairperson)
China, Chinese Society of Hydraulic Engineering, CHN
International symposium on river sedimentation, Beijing, China, Mar. 24-29, 1980
Publ. Guizhou Press
623-632p., 1980
6 REFS

Subfile B
Country of Publ.: China
Doc Type: BOOK
Level: ANALYTIC
Languages: English Summary Languages: Chinese
illust

Descriptors: hydrology; sedimentation; rivers and streams; transport; stream transport; engineering geology; hydraulics; channel geometry; equations; waterways; rivers; statistical analysis
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

1104855 82-24465

Settlement analysis of soft clays reinforced with granular piles

Balam, N. P.; Poulos, H. G.; Brown, P. I.

Proceedings of the Fifth Southeast Asian conference on soil engineering

Brand, E. W. (chairperson)
The Fifth Southeast Asian conference on soil engineering, Bangkok, Thailand, July 24, 1977
Proceedings of the Southeast Asian Conference on Soil Engineering 5, 81-92p., 1977
24 REFS

Subfile B
Country of Publ.: Thailand
Doc Type: SERIAL
Level: ANALYTIC
Languages: English
Descriptors: foundations; soil mechanics; piles; settlement; clay; Poisson's ratio; elastic constants; young's modulus; pressure; pore pressure; clastic sediments; behavior; finite element analysis; statistical methods; consolidation; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1104731 82-24391

Sediment characteristics of alpine mudflows in the Nigel Pass area, Canadian Rocky Mountains

Owens, I. F.
York Univ., Downsview, ON, CAN

Ninth congress of the International Union for Quaternary Research; abstracts

Anonymous
Ninth congress of the International Union for Quaternary Research, Christchurch, New Zealand, Dec. 2-10, 1973
Congress of the International Union for Quaternary Research 9, 274-275p., 1973
Subfile: B

Country of Publ.: International
Doc Type: SERIAL
Level: ANALYTIC
Languages: English
Descriptors: Rocky Mountains; Alberta; sediments; engineering geology; textures; slope stability; grain size; North America; Northern Rocky Mountains; Canadian Cordillera; Banff National Park; Jasper National Park; Nigel Pass, Canada; alpine environment; statistical analysis; mudflows

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1104259 82-24581

**Studii statistice al influentel adincimil asupra rezistentel la compresune a rociilor
Statistical study of depth influence on rock compressive strength**

Constantinescu, I.; Noaghi, T.
Inst. Mine, Petrosani, ROM
Mine, Pet. Gaze (Buchar.) 28: 6, 256-261p., 1977
CODEN: MPGADY ISSN: 0250-3115 3 REFS.
Subfile: B

Country of Publ.: Romania
Doc Type: SERIAL
Level: ANALYTIC
Languages: Romanian Summary Languages: English
12 tables

Descriptors: rock mechanics; Romania; materials; properties; engineering geology; compressive strength; materials; properties; depth; statistical analysis; sandstone; clastic rocks; shale; Lomea; Europe
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1101478 82 25139

Statistics, reliability theory and safety factors
Simons, H.

Design parameters in geotechnical engineering--Parametres de conception dans la geotechnique

Seventh European conference on soil mechanics and foundation engineering, Brighton, United Kingdom, Sept. 1979
European Regional Conference of the International Society for Soil Mechanics and Foundation Engineering 7, Vol. 5, 81-96p., 1981
ISBN: 0-7277-0080-4 18 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Illustrations: 1 table
Descriptors: 'soil mechanics'; materials; properties; statistical analysis; factors; safety; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1101467 82 24747

Statistics, reliability theory and safety factors

Hoe, V.; Simons, H.; Biermatovski, K.; Schulze, E.; Hight, D. W.; Driscoll, R. M. C.; Gallagher, K. A.

Design parameters in geotechnical engineering--Parametres de conception dans la geotechnique

Seventh European conference on soil mechanics and foundation engineering, Brighton, United Kingdom, Sept. 1979
European Regional Conference of the International Society for Soil Mechanics and Foundation Engineering 7, Vol. 4, 95-119p., 1980
ISBN: 0-7277-0080-4 61 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Illustrations: 2 tables
Descriptors: 'soil mechanics'; materials; properties; factors; statistical analysis; exploration; foundations; deformation; design; construction; friction; excavations; finite element analysis; statistical methods; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1101465 82 24675

Design parameters for soft clays

Franko, E.; Jamiolkowski, M.; Janbu, N.; Massarsch, K. R.; St. John, H. D.; Lewin, P. J.; Powell, J. J. W.

Design parameters in geotechnical engineering--Parametres de conception dans la geotechnique

Seventh European conference on soil mechanics and foundation engineering, Brighton, United Kingdom, Sept. 1979
European Regional Conference of the International Society for Soil Mechanics and Foundation Engineering 7, Vol. 4, 19-61p., 1980
ISBN: 0-7277-0080-4 67 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Illustrations: 1 table
Descriptors: 'soil mechanics'; applications; factors; clay; clastic sediments; soft clays; design; stress; triaxial tests; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103450 82-24818

Deformation characteristics of broken schist in a rockfill dam
Kinze, M.

Design parameters in geotechnical engineering--Parametres de conception dans la geotechnique

Seventh European conference on soil mechanics and foundation engineering, Brighton, United Kingdom, Sept. 1979
European Regional Conference of the International Society for Soil Mechanics and Foundation Engineering 7, Vol. 3, 219-223p., 1979
ISBN: 0-7277-0080-4

Subfile: B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Illustrations: 1 illus.
Descriptors: East Germany; rock mechanics; engineering geology; materials; properties; dams; schists; foundations; deformation; argillaceous texture; finite element analysis; statistical methods; strain; stress; Germany; Europe; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103447 82-24637

Enceinte en paroi moulée dans des limons argileux; calculs et observations
Slurry wall in clayey silt; computations and observations
Dyball, M.; Fontana, A.; Rybicki, J.

Design parameters in geotechnical engineering--Paramètres de conception dans la géotechnique
Seventh European Conference on soil mechanics and foundation engineering, Brighton, United Kingdom, Sept. 1979
European Regional Conference of the International Society for Soil Mechanics and Foundation Engineering 7, Vol. 3, 197-205p., 1979
ISBN: 0-7277-0080-4 11 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: French
2 tables
Descriptors: Europe; soil mechanics; engineering geology; materials; properties; foundations; silt; Lake Geneva; excavations; deformation; finite element analysis; statistical methods; construction; materials; properties; clastic sediments
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103445 82-24580

Analysis of a progressive failure in Pannonian clay
Constantinescu, A.; Comsa, R.; Matel, L.

Design parameters in geotechnical engineering--Paramètres de conception dans la géotechnique
Seventh European Conference on soil mechanics and foundation engineering, Brighton, United Kingdom, Sept. 1979
European Regional Conference of the International Society for Soil Mechanics and Foundation Engineering 7, Vol. 3, 189-192p., 1979
ISBN: 0-7277-0080-4 5 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus., 2 tables
Descriptors: Romania; soil mechanics; engineering geology; materials; properties; slope stability; clay; Europe; Transylvania; landslides; clastic sediments; Pannonian; Neogene; tertiary; excavations; behavior; weathering; finite element analysis; statistical methods; stability; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103386 82-25155

Lateral earth pressure due to surcharge loads
Smolczyk, U.; Vogt, N.; Hilmer, K.

Design parameters in geotechnical engineering--Paramètres de conception dans la géotechnique
Seventh European Conference on soil mechanics and foundation engineering, Brighton, United Kingdom, Sept. 1979
European Regional Conference of the International Society for Soil Mechanics and Foundation Engineering 7, Vol. 2, 131-139p., 1979
ISBN: 0-7277-0080-4 18 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus., 1 table
Descriptors: soil mechanics; West Germany; earth pressure; engineering geology; loading; finite element analysis; statistical methods; density; stress; Germany; Europe; Nuremberg
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103356 82-25088

Tentative d'évaluation probabiliste du niveau de sécurité des ouvrages
Tentative probability evaluation of structural safety
Salember, M.

Design parameters in geotechnical engineering--Paramètres de conception dans la géotechnique
Seventh European Conference on soil mechanics and foundation engineering, Brighton, United Kingdom, Sept. 1979
European Regional Conference of the International Society for Soil Mechanics and Foundation Engineering 7, Vol. 1, 249-256p., 1979
ISBN: 0-7277-0080-4 7 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: French Summary Languages: French
illus., 1 table
Descriptors: foundations; stability; theoretical studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103335 82-24623

Optimum designs of state of the consolidation of soil medium
Drański, J.; Witk., J.

Design parameters in geotechnical engineering--Parametres de conception dans la geotechnique

Seventh European Conference on soil mechanics and foundation engineering, Brighton, United Kingdom, Sept. 1979
European Regional Conference of the International Society for Soil Mechanics and Foundation Engineering 7, Vol. 1, 143-146p., 1979

ISBN 0-7277 0090-4 15 REFS.

Subfile B
Country of Publ.: International
Doc Type SERIAL: CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages English
illus., 1 table
Descriptors: soil mechanics; materials; properties; properties; consolidation; materials; properties; design; soils;
finite element analysis; statistical methods
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103317 82-24532

Movements around excavations in London Clay
Burland, J. B.; Simpson, B.; St. John, H. D.

Design parameters in geotechnical engineering--Parametres de conception dans la geotechnique

Seventh European conference on soil mechanics and foundation engineering, Brighton, United Kingdom, Sept. 1979
European Regional Conference of the International Society for Soil Mechanics and Foundation Engineering 7, Vol. 1, 13-29p., 1979

ISBN 0-7277 0080-4 29 REFS.

Subfile B
Country of Publ.: International
Doc Type SERIAL: CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages English
illus.
Descriptors: England; rock mechanics; engineering
geology; excavations; materials; properties; Europe;
finite element analysis; statistical methods; materials;
properties; London Clay; Eocene; Paleogene; Tertiary;
stratigraphy
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103242 82-25085

Heaving conditions by freezing of soils
Saetersdal, R.

Norw., Road Res. Lab., Oslo, NOR; Norw., Road Res. Lab., NOR

Ground freezing 1980

Frivik, P. E. (EDITOR); Janbu, N. (EDITOR); Saetersdal, R. (EDITOR); Finborud, L. I. (EDITOR)
Norw. Inst. Technol., Div. Refrig. Eng., Trondheim, NOR
Second international symposium on ground freezing, Trondheim, Norway, June 24-26, 1980

Eng. Geol. 18, 1-4, 291-305p., 1981

CODEN: EGGD00 ISSN: 0013-7952 40 REFS

Subfile B

Country of Publ.: International
Doc Type SERIAL: CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages English
illus., 9 tables

Descriptors: soil mechanics; permafrost; frost action; frost heaving; observations; mechanism; prediction; probability; indicators; laboratory studies; frozen ground
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103241 82-25019

An attempt at a new formulation of the criteria of frost heave

Pietrzyk, K.
Krakow Tech. Univ., Inst. Geotechnics, Krakow, POL; Norw., Road Res. Lab., NOR

Ground freezing 1980

Frivik, P. E. (EDITOR); Janbu, N. (EDITOR); Saetersdal, R. (EDITOR); Finborud, L. I. (EDITOR)
Norw. Inst. Technol., Div. Refrig. Eng., Trondheim, NOR
Second international symposium on ground freezing, Trondheim, Norway, June 24-26, 1980

Eng. Geol. 18, 1-4, 281-290p., 1981

CODEN: EGGD00 ISSN: 0013-7952 4 REFS.

Subfile B

Country of Publ.: International
Doc Type SERIAL: CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages English
illus., 1 table

Descriptors: soil mechanics; highways; frost action; frost heaving; prediction; laboratory studies; probability; frozen ground
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103231 82-24780
Optimization of the freeze pipe arrangement and the necessary refrigeration plant capacity by a PFM-computer program
 Jessberger, H. L.; Makowski, E.
 Ruhr Univ., Dep. Civ. Eng., Bochum, DEU; Norw. Road Res. Lab., NOR

Ground freezing 1980
 Frivik, P. E. (EDITOR); Janbu, N. (EDITOR); Saetersdal, R. (EDITOR); Finborud, L. I. (EDITOR)
 Norw. Inst. Technol., Div. Refrig. Eng., Trondheim, NOR
 Second International Symposium on ground freezing, Trondheim, Norway, June 24-26, 1980
 Eng. Geol. 18: 1-4, 175-188p, 1981
 CODEN EGGDAD ISSN: 0013-7952 25 REFS.
 Subfile B
 Country of Pub: International
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 illus.: 3 tables
 Descriptors: soil mechanics; automatic data processing; methods; engineering geology; artificial ground freezing; frozen ground; computer programs; instruments; optimization; finite element analysis; statistical methods; heat transfer; thermal properties; freezing
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103230 82-24791
Developments and applications of frost susceptibility testing
 Jones, R. H.
 Univ. Nottingham, Dep. Civ. Eng., Nottingham, GBR; Norw. Road Res. Lab., NOR

Ground freezing 1980
 Frivik, P. E. (EDITOR); Janbu, N. (EDITOR); Saetersdal, R. (EDITOR); Finborud, L. I. (EDITOR)
 Norw. Inst. Technol., Div. Refrig. Eng., Trondheim, NOR
 Second International Symposium on ground freezing, Trondheim, Norway, June 24-26, 1980
 Eng. Geol. 18: 1-4, 269-280p, 1981
 CODEN EGGDAD ISSN: 0013-7952 21 REFS.
 Subfile B
 Country of Pub: International
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 illus.: 3 tables
 Descriptors: soil mechanics; frost action; frost heaving; prediction; testing; techniques; sample preparation; instruments; frozen ground; probability
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1103232 82-24678
Thermal design of artificial soil freezing systems
 Frivik, P. E.; Thorbergsen, E.
 Norw. Inst. Technol., Div. Refrig. Eng., Trondheim, NOR; Norw. Road Res. Lab., NOR

Ground freezing 1980
 Frivik, P. E. (EDITOR); Janbu, N. (EDITOR); Saetersdal, R. (EDITOR); Finborud, L. I. (EDITOR)
 Norw. Inst. Technol., Div. Refrig. Eng., Trondheim, NOR
 Second International Symposium on ground freezing, Trondheim, Norway, June 24-26, 1980
 Eng. Geol. 18: 1-4, 189-201p, 1981
 CODEN EGGDAD ISSN: 0013-7952 20 REFS.
 Subfile B
 Country of Pub: International
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 illus.: 3 tables
 Descriptors: soil mechanics; automatic data processing; methods; engineering geology; artificial ground freezing; thermal properties; design; instruments; thermal regime; computer programs; finite difference analysis; finite element analysis; statistical methods; heat transfer; cryotechniques; frozen ground; freezing
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102841 82-24180

Evaluation of a chimney drain design in an earthfill dam

Musick, M. L.; Aral, M. M.

U. S. Geol. Surv., Davisville, GA, USA, Ga. Inst. Technol.

Soils under cyclic and transient loading

Ground Water 20 1 22 31p 1982

COPEN GEWAAR ISSN 0017-467X 21 REFS

Subfile B

Country of Publ.: United States

Doc Type SERIAL Bibliographic Level ANALYTIC

Language English

illus 3 tables

Latitude N331500, Longitude W0831500, W0833000

Descriptors: Geology; ground water; automatic data

processing; engineering geology; surveys; hydrogeology; dams; earth dams; United States; Wallace Dam; Union

Rock Pressure; seepage; earth dams; design; drains; finite difference analysis; hydrology

Section Headings: 21 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

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Section Headings: 21 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Univ. Coll. Swansea, Dep. Civ. Eng., Swansea, GBR

International symposium on soils under cyclic and transient

loading, Swansea, United Kingdom, Jan. 7-11, 1980

Publ. A A Balkema

1 2 867-877p 1980

ISBN 90 6191 076 5 35 REFS

Subfile B

Country of Publ.: Netherlands

Doc Type BOOK: CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Language English

illus 4 tables

Descriptors: soil mechanics; underground installations;

deformation; rock mechanics; shear modulus; porous

materials; finite element analysis; statistical methods;

Poisson's ratio; elastic constants; saturation; viscous

materials; seismic response; pipelines; materials;

properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

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Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Shakedown of elasto-plastic continua with special reference

to soil-rock structures

Pande, G. N.; Davis, E. H.; Abdullah, W. S.

Soils under cyclic and transient loading

Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)

Univ. Coll. Swansea, Dep. Civ. Eng., Swansea, GBR

International symposium on soils under cyclic and transient

loading, Swansea, United Kingdom, Jan. 7-11, 1980

Publ. A A Balkema

1 2 739-746p 1980

ISBN 90 6191 076 5 10 REFS

Subfile B

Country of Publ.: Netherlands

Doc Type BOOK: CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Language English

illus 1 table

Descriptors: foundations; soil mechanics; structures;

deformation; marine installations; offshore; design;

construction; cyclic loading; finite element analysis;

statistical methods; behavior

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

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1102816 82-24162

Acoustic emission study of microfracturing during the cyclic

loading of Westerley granite

Soudergeld, C. H.; Estey, J. H.

Univ. Colo. RDA, Geop. Inst. for Res. in Environ. Sci.

Boulder, CO, USA

JGR Journal of Geophysical Research B 86 4 2045 2054

1 1981

ISBN 0160 6336 11 REFS

Subfile B

Country of Publ.: United States

Doc Type SERIAL Bibliographic Level ANALYTIC

Language English

illus

Descriptors: rock mechanics; earthquakes; igneous rocks;

materials; properties; focal mechanisms; granites;

failures; prediction; mechanical properties; Westerly

Granite; cyclic loading; least squares; analysis;

statistical methods; stress; materials; properties;

equations; experimental studies; strain

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

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G21

1102810 82-2441G

Finite element linear programming approach to foundation shakedown

Aboustit, B. L.; Reddy, D. V.
New Univ Newfoundland, St John's, NF, CAN

Soils under cyclic and transient loading

Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ Coll Swansea, Dep. Civ. Eng., Swansea, GBR
International symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980
Publ. A. A. Balkema

1. 2. 727-738p. 1980
ISBN: 90-6191-076-5 33 REFS

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.: 6 tables

Descriptors: automatic data processing; soil mechanics; engineering geology; materials; properties; foundations; finite element analysis; statistical methods; analysis; computer programs; stress; soils; clays; materials; properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102809 82-25035

A general mathematical model for clay core rockfill dams

Plascu, R.; Stenatiu, D.; Ilie, L.

Soils under cyclic and transient loading

Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ. Coll. Swansea, Dep. Civ. Eng., Swansea, GBR
International symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980
Publ. A. A. Balkema

1. 2. 713-725p. 1980

ISBN: 90-6191-076-5 13 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.: 1 table

Descriptors: automatic data processing; dams; soil mechanics; engineering geology; design; deformation; earth dams; clay; mathematical models; models; clastic sediments; finite element analysis; statistical methods; permeability; Young's modulus; elastic constants; settlement; stress

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102808 82-25034

The influence of consolidation phenomenon upon stresses in embankment dams

Plascu, R.; Popovici, A.; Ilie, L.; Stere, C.

Soils under cyclic and transient loading

Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ. Coll. Swansea, Dep. Civ. Eng., Swansea, GBR
International symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980
Publ. A. A. Balkema

1. 2. 705-712p. 1980

ISBN: 90-6191-076-5 8 REFS

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.

Descriptors: dams; soil mechanics; design; materials; properties; embankments; pore pressure; earth dams; permeability; finite element analysis; statistical methods; stress; materials; properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102798 82 24800

A finite element study on earth covered structures subjected to impact loading

Pelz, R

Soils under cyclic and transient loading

Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ. Coll. Swansea, Dep. Civ. Eng., Swansea, GBR
International Symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980

Publ. A. A. Balkema
1, 2, 673 68p.
ISBN 90 6191 076 5 9 REFS

Subfile B
Country of Publ. Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC
Languages English

Notes Descriptors *foundations; *soil mechanics; structures; materials; properties; engineering properties; triaxial tests; finite element analysis; statistical methods; loading; elasticity; stress; equations; materials; properties

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102799 82 24810

Stress strain relationship of sand and its application to FEM analysis

Tobita, T.; Yamazawa, F

Soils under cyclic and transient loading

Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ. Coll. Swansea, Dep. Civ. Eng., Swansea, GBR
International Symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980

Publ. A. A. Balkema
1, 2, 653 66p.
ISBN 90 6191 076 5 10 REFS

Subfile B
Country of Publ. Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC
Languages English

Notes Descriptors *soil mechanics; materials; properties; finite element analysis; statistical methods; sand; elastic sediments; materials; properties; elasticity; deformation; behavior; consolidation; strain; triaxial tests; stress

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102798 82 24811

Numerical and analytical computations of excess pore pressures

Koenders, M. A.; Saathof, L. E. B.

Soils under cyclic and transient loading

Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ. Coll. Swansea, Dep. Civ. Eng., Swansea, GBR
International Symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980

Publ. A. A. Balkema
1, 2, 619 625p.
ISBN 90 6191 076 5 3 REFS

Subfile B
Country of Publ. Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC
Languages English

Notes Descriptors *soil mechanics; materials; properties; pore pressure; analysis; finite element analysis; statistical methods; triaxial tests; models; materials; properties

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102780 82 24447

Endochronic models for soils

Aral, A. M.; Razant, Z. P.; Krizek, R. J.
Istanbul Tech. Univ., Istanbul, TUR; Northwest. Univ., Evanston, IL, USA

Soils under cyclic and transient loading

Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ. Coll. Swansea, Dep. Civ. Eng., Swansea, GBR
International Symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980

Publ. A. A. Balkema
1, 2, 475 476p.
ISBN 90 6191 076 5 12 REFS

Subfile B
Country of Publ. Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC
Languages English

Notes Descriptors *soil mechanics; materials; properties; cyclic loading; models; soils; factors; stress; stability; plasticity; finite element analysis; statistical methods; materials; properties

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102765 82-25197

Endochronic constitutive equation for soil
Szavits Nossan, A.

Soils under cyclic and transient loading
Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ. Coll., Swansea, Dep. Civ. Eng., Swansea, GBR
International symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980
Publ. A. A. Balkema
1. 2. 347-352p. 1980
ISBN 90-6191-076-5 12 REFS.
Subfile B
Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: *soil mechanics; experimental studies; equations; stress; consolidation; mechanism; loading; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102760 82-24693

Modeling and analysis of cyclic behavior of sands

Glabouski, J.; Momen, M.
Univ. Ill., Urbana, IL, USA
Soils under cyclic and transient loading
Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ. Coll., Swansea, Dep. Civ. Eng., Swansea, GBR
International symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980
Publ. A. A. Balkema
1. 2. 299-300p. 1980
ISBN 90-6191-076-5
Subfile B
Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Descriptors: *soil mechanics; materials; properties; compressibility; finite element analysis; statistical methods; loading; behavior; sand; clastic sediments; analysis; models; deformation; stress; materials; properties; triaxial tests; cyclic tests
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102758 82-24503

A non-linear model for the elastic behaviour of granular materials under repeated loading

Boyce, H. R.
Soils under cyclic and transient loading
Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ. Coll., Swansea, Dep. Civ. Eng., Swansea, GBR
International symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980
Publ. A. A. Balkema
1. 2. 285-294p. 1980
ISBN 90-6191-076-5 23 REFS.
Subfile B
Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: *soil mechanics; materials; properties; cohesionless materials; granular materials; loading; behavior; models; pressure; stress; elasticity; equations; Poisson's ratio; elastic constants; triaxial tests; finite element analysis; statistical methods; materials; properties; non-linear behavior
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102757 82-25268

Effect of work hardening rules on the elasto-plastic matrix
Wen-Xi Huang

Soils under cyclic and transient loading
Pande, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ. Coll., Swansea, Dep. Civ. Eng., Swansea, GBR
International symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980
Publ. A. A. Balkema
1. 2. 277-287p. 1980
ISBN 90-6191-076-5 8 REFS.
Subfile B
Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Descriptors: *soil mechanics; experimental studies; effects; finite element analysis; statistical methods; strain; stress; work hardening rule
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102756 82-25031

Finite element solution of boundary value problems in soil mechanics

Prevedst, J. H.; Hughes, T. J. R.
Princeton Univ., Princeton, NJ, USA; Calif. Inst. Technol., Pasadena, CA, USA

Soils under cyclic and transient loading

Editor, G. N. (EDITOR); Zienkiewicz, O. C. (EDITOR)
Univ. Coll. Swansea, Dep. Civ. Eng., Swansea, GBR
International Symposium on soils under cyclic and transient loading, Swansea, United Kingdom, Jan. 7-11, 1980
Publ. A. A. Balkema
1, 2, 263 276p., 1980
ISBN 90-6191-076-5 24 REFS.
Subfile B

Country of Publ. Netherlands
Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
illus., 2 tables
Descriptors: soil mechanics; applications; cyclic loading; finite element analysis; statistical methods; equations; shear modulus; elastic constants
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102672 82-24487

A structural approach to shaft design for deep mines in hard rock

Reus, M. J.; Chan, S. S. M.
U. S. Bur. Mines, Spokane, WA, USA; Univ. Idaho, Boise, ID, USA

The state of the art in rock mechanics

Summers, D. A. (chairperson)
Univ. Mo., Rolla, MO, USA
21st Symposium on rock mechanics, Rolla, MO, United States, May 28-30, 1980
Proceedings - Symposium on Rock Mechanics 21, 780-786p., 1980
CODEN PSRMA6 ISSN 0586-3031 10 REFS.
Subfile B

Country of Publ. United States
Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
illus., 6 tables
Descriptors: rock mechanics; materials; properties; mining; hard rock; design; Idaho; United States; Coeur d'Alene; finite element analysis; statistical methods; stability; pressure; materials; properties
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102656 82-24498

Statistical analysis and modeling of the physical, mechanical, and strength properties of oil shale

Bondurant, E. J.; Chang, N. Y.
Univ. Colo., Boulder, CO, USA

The state of the art in rock mechanics

Summers, D. A. (chairperson)
Univ. Mo., Rolla, MO, USA
21st Symposium on rock mechanics, Rolla, MO, United States, May 28-30, 1980
Proceedings - Symposium on Rock Mechanics 21, 604-613p., 1980
CODEN PSRMA6 ISSN 0586-3031 11 REFS.
Subfile B

Country of Publ. United States
Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
5 tables, sketch map
Descriptors: rock mechanics; materials; properties; statistical analysis; physical properties; mechanical properties; strength; oil shale; uniaxial tests; triaxial tests; materials; properties; Colorado; United States; Piceance Creek basin; models
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102552 82-24857

Analysis of the spatial variations in rock mass properties through geostatistics

Lafontaine, P. R.
Univ. Wis. Dep. Metall. Min. Eng., Madison, WI, USA

The state of the art in rock mechanics

Summers, D. A. (chairperson)
Univ. Mo., Rolla, MO, USA
21st Symposium on rock mechanics, Rolla, MO, United States
May 28-30, 1980
Proceedings - Symposium on Rock Mechanics 21, 570-580p.
1980

CODEN: PSRMA6 ISSN: 0586-3031 30 REFS.

Subfile: B
Country of Publ.: United States
Doc. Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English

Descriptors: rock mechanics; materials; properties; spatial distribution; joints; fractures; models; design; materials; properties; Wisconsin; United States; Lannon; quarries; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102624 82-24953

Analytic subsidence model using void-volume distribution functions

Munson, D. E.; Boziley, S. E.
Sandia Lab., Albuquerque, NM, USA

The state of the art in rock mechanics

Summers, D. A. (chairperson)
Univ. Mo., Rolla, MO, USA
21st Symposium on rock mechanics, Rolla, MO, United States
May 28-30, 1980
Proceedings - Symposium on Rock Mechanics 21, 299-307p.
1980

CODEN: PSRMA6 ISSN: 0586-3031 20 REFS.

Subfile: B
Country of Publ.: United States
Doc. Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English

Descriptors: rock mechanics; land subsidence; failures; mines; models; mechanism; materials; properties; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102609 82-24510

Thermomechanical assessment of compensated CAES caverns in hard rock

Grandjean, T.
RI/SPEC, Rapid City, SD, USA

The state of the art in rock mechanics

Summers, D. A. (chairperson)
Univ. Mo., Rolla, MO, USA
21st Symposium on rock mechanics, Rolla, MO, United States
May 28-30, 1980
Proceedings - Symposium on Rock Mechanics 21, 163-174p.
1980

CODEN: PSRMA6 ISSN: 0586-3031 13 REFS.

Subfile: B
Country of Publ.: United States
Doc. Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English

Descriptors: rock mechanics; underground installations; elasticity; excavations; finite element analysis; compressed air energy storage; caverns; solution features; geomorphology; statistical methods; stress; thermal conductivity; Young's modulus; elastic constants; Poisson's ratio
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102605 92 25632

Rock slotting by high pressure water jet for use in tunneling

El Sawi, A
Univ. Mo., Rolla, MO, USA

The state of the art in rock mechanics

Summers, D. A (chairperson)

Univ. Mo., Rolla, MO, USA

21st Symposium on Rock Mechanics, Rolla, MO, United States

May 28-30, 1980

Proceedings - Symposium on Rock Mechanics 21, 123-131p., 1980

CODEN PSRMAG ISSN 0586-3031 5 REFS.

Subfile B

Country of Publ. United States

Doc Type SERIAL CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Language(s) English
Abstracts 2 tables
Descriptors rock mechanics; tunnels; experimental studies; excavations; drilling; stress; finite element analysis; statistical methods; jet slotting; young's modulus; elastic constants; Poisson's ratio; compressive strength; strength; density; design; feasibility studies
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102601 92 25036

Effects of waterjet slotting on roller cutter forces

Pfeister, R. S.; Reimer, D. W

Flow Res. Co., Kent, WA, USA

The state of the art in rock mechanics

Summers, D. A (chairperson)

Univ. Mo., Rolla, MO, USA

21st Symposium on Rock Mechanics, Rolla, MO, United States

May 28-30, 1980

Proceedings - Symposium on Rock Mechanics 21, 86-91p., 1980

CODEN PSRMAG ISSN 0586-3031 14 REFS

Subfile B

Country of Publ. United States

Doc Type SERIAL CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Language(s) English
Abstracts 2 tables
Descriptors rock mechanics; elasticity; finite element analysis; blasting; loading; statistical methods; shear strength; failures
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Parametric thermal/thermoelastic analyses of nuclear waste repositories in granite and other non-salt rock types

Osies, J. D.; Wagner, R. A.; Waldman, H.

PF/SPEC, Rapid City, SD, USA

The state of the art in rock mechanics

Summers, D. A (chairperson)

Univ. Mo., Rolla, MO, USA

21st Symposium on Rock Mechanics, Rolla, MO, United States

May 28-30, 1980

Proceedings - Symposium on Rock Mechanics 21, 73-83p., 1980

CODEN PSRMAG ISSN 0586-3031 29 REFS.

Subfile B

Country of Publ. United States

Doc Type SERIAL CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Language(s) English

Abstracts 2 tables

Descriptors rock mechanics; waste disposal; elasticity; radioactive waste; finite element analysis; land use; analysis; loading; in situ; stress; failures; statistical methods; granite; granite granodiorite family; Poisson's ratio; elastic constants
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102600 92 24985

1102599 82-25003

Inexpensive but technically sound mine pillar design analysis

Pariseau, W. G.

Univ. Utah, Salt Lake City, UT, USA

The state of the art in rock mechanics

Summers, D. A. (chairperson)

Univ. Mo., Rolla, MO, USA

21st Symposium on rock mechanics. Rolla, MO, United States

May 28-30, 1980

Proceedings - Symposium on Rock Mechanics 21, 57-72p.

1980

CODEN: PSRMAG ISSN: 0586-3031 7 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.: 3 tables

Descriptors: rock mechanics; experimental studies; stability; pillars; analysis; mines; design; algorithms; underground installations; stress; three-dimensional models; models; equations; finite element analysis; statistical methods; automatic data processing; methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102598 82-25011

3-D structural analysis of longwall panels

Peck, S. S.; Matsuki, K.; Su, W. H.

W Va. Univ., Dep. Min. Eng., Morgantown, WV, USA

The state of the art in rock mechanics

Summers, D. A. (chairperson)

Univ. Mo., Rolla, MO, USA

21st Symposium on rock mechanics. Rolla, MO, United States

May 28-30, 1980

Proceedings - Symposium on Rock Mechanics 21, 44-56p.

1980

CODEN: PSRMAG ISSN: 0586-3031 5 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.: 5 tables

Descriptors: rock mechanics; materials; properties; finite element analysis; three-dimensional models; models; analysis; statistical methods; Young's modulus; plastic constants; longwall panels; effects; packwall materials; stress; design; materials; properties; Poisson's ratio

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102597 82-24776

Stress analysis in underground extraction of steeply dipping thick coal seams

Jeremic, M. L.; Lutley, H. J.

Univ. Alberta, Dep. Min. Eng., Edmonton, AB, CAN

The state of the art in rock mechanics

Summers, D. A. (chairperson)

Univ. Mo., Rolla, MO, USA

21st Symposium on rock mechanics. Rolla, MO, United States

May 28-30, 1980

Proceedings - Symposium on Rock Mechanics 21, 35-43p.

1980

CODEN: PSRMAG ISSN: 0586-3031 6 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.: 2 tables

Descriptors: rock mechanics; excavations; analysis; Alberta; Canada; British Columbia; engineering geology; economic geology; coal; organic residues; reserves; uniaxial tests; triaxial tests; Young's modulus; elastic constants; Poisson's ratio; finite element analysis; statistical methods; stress; stability; automatic data processing

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102596 82-24825

Time-dependent closure analysis of a nuclear waste repository in bedded salt

Harrington, J. J.
D'Appolonia Consult. Eng., Albuquerque, NM, USA

The state of the art in rock mechanics

Summers, D. A. (chairperson)
Univ. Mo., Rolla, MO, USA
21st Symposium on Rock Mechanics, Rolla, MO, United States
May 28-30, 1980
Proceedings - Symposium on Rock Mechanics 21, 26-34p., 1980

CODEN PSRMA6 ISSN 0586-3031 12 REFS

Subfile B
Country of Publ.: United States
Doc Type SERIAL: CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
illus. 2 tables

Descriptors: rock mechanics; waste disposal; materials; properties; site exploration; salt; Salado Formation; New Mexico; United States; Delaware Basin; engineering geology; radioactive waste; finite element analysis; statistical methods; materials; properties; Young's modulus; elastic constants; Poisson's ratio; underground installations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102594 82-24805

Finite element analysis of a longwall mine

Keith, H. D.; Batia, R. C.; Conroy, P. J.
Univ. Mo., Rolla, MO, USA; Dames Moore, Park Ridge, IL, USA

The state of the art in rock mechanics

Summers, D. A. (chairperson)
Univ. Mo., Rolla, MO, USA
21st Symposium on Rock Mechanics, Rolla, MO, United States
May 28-30, 1980
Proceedings - Symposium on Rock Mechanics 21, 9-15p., 1980

CODEN PSRMA6 ISSN 0586-3031 3 REFS

Subfile B
Country of Publ.: United States
Doc Type SERIAL: CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
illus. 1 table

Descriptors: rock mechanics; case studies; finite element analysis; statistical methods; mines; three-dimensional models; Illinois; United States; Benton; coal fields
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102593 82-25241

Stability comparisons of longwall panel entries using finite element analysis

Van Dillen, D. E.; Ko, K. C.; Jenkins, F. M.; Karwowski, W.
Aghabian Assoc., El Segundo, CA, USA; Kenneth C. Ko Assoc., Englewood, CO, USA

The state of the art in rock mechanics

Summers, D. A. (chairperson)
Univ. Mo., Rolla, MO, USA
21st Symposium on Rock Mechanics, Rolla, MO, United States
May 28-30, 1980
Proceedings - Symposium on Rock Mechanics 21, 1-8p., 1980

CODEN PSRMA6 ISSN 0586-3031 11 REFS

Subfile B
Country of Publ.: United States
Doc Type SERIAL: CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
illus. 1 table

Descriptors: rock mechanics; experimental studies; finite element analysis; statistical methods; three-dimensional models; models; stability; excavations; underground installations; design
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102454 82-25168

Prediction of frequency and amplitude of foundations at resonance

Sridharan, A.; Nagendra, M. V.
Indian Inst. Sci., Dep. Civ. Eng., Bangalore, IND
Canadian Geotechnical Journal-Revue Canadienne de Geotechnique 18, 4, 603-607p., 1981

CODEN CGJDAI ISSN 0008-3674 11 REFS

Subfile B
Country of Publ.: Canada
Doc Type SERIAL: Bibliographic Level: ANALYTIC
Languages English
3 tables

Descriptors: foundations; soil mechanics; stability; deformation; vibration; prediction; statistical analysis; frequency; displacements; machinery; regression analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1102449 82-24869

**Effectiveness of seepage control elements for embankments on
sempervivous foundations**

Lefebvre, G.; Lupien, C.; Pare, J. J.; Tournier, J.
Univ. Sherbrooke, Dep. Civ. Eng., Sherbrooke, PQ, CAN; Soc.
Eng. James Bay, CAN
Canadian Geotechnical Journal-Revue Canadienne de
Geotechnique 18, 4, 572-576p., 1981
CODEN CGJDAH ISSN: 0008-3674 6 REFS.
Subfile B

Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus.
Descriptors: *dams; *foundations; *soil mechanics;
materials; properties; seepage; permeability; embankments;
sempervivous materials; finite element analysis;
statistical methods; control methods; materials; properties;
anisotropy
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1101767 82-24765

Seismic aspects of Taleghan Dam

Islami, A. A.
Tehran Univ., Inst. Geophys., Tehran, IRN
J. Earth Space Phys. (Tehran) 9, 1-2, 5-10p., 1980
CODEN JESPCS 6 REFS.
Subfile B

Country of Publ.: Iran
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: English; Portuguese
illus., 2 tables
Latitude: N340000; Longitude: E0540000; E0480000
Descriptors: *Iran; *seismology; engineering geology;
earthquakes; dams; seismicity; Asia; Taleghan Dam;
seismic design; least-squares analysis; statistical methods;
intensity; attenuation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1101741 82-24836

Statistical estimation of compression index

Koppula, S. D.
Hardy Assoc., Edmonton, AB, CAN
ASIM Geotechnical Testing Journal 4, 2, 68-73p., 1981
CODEN GTJODJ ISSN: 0149-6115 10 REFS.
Subfile B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., 7 tables
Descriptors: *Alberta; *soil mechanics; engineering

geology; settlement; consolidation; cohesive materials;
testing; Canada; compression index; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1101281 82-24625

Probabilistic treatment of faulting in geologic media

Donath, F. A.; Cranwell, R. M.
Univ. Ill., Urbana, IL, USA; Sandia Lab., USA

Mechanical behavior of crustal rocks; the Hardin volume
Carter, N. L. (EDITOR); Friedman, M. (EDITOR); Logan, J.
M. (EDITOR); Stearns, D. W. (EDITOR)
Tex. A&M Univ., Cent. Tectonophys., College Station, TX, USA
Geophysical Monograph 24, 231-241p., 1981
CODEN GPMGAD ISSN: 0065-8448 12 REFS.
Subfile B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., 1 table
Descriptors: *faults; *waste disposal; *geologic hazards;
displacements; radioactive waste; active faults;
prediction; rock mechanics; probability; stress;
statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1100688 82-24619

**Otsenka pogreshnostey laboratornykh opredeleniy prochnostnykh
kharakteristik porod**

Analyzing errors in laboratory studies of rock strengths

Dikovskiy, A. L.
Vyssh. Uchebn. Zaved., Izv., Geol. Razved., 1980, 7, 74-77
p., 1980
CODEN IVUGAF ISSN: 0016-7762 3 REFS.
Subfile B

Country of Publ.: Union of Soviet Socialist Republics
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Russian
illus.

Descriptors: *rock mechanics; materials; properties;
strength; statistical analysis; laboratory studies;
materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1099582 82 24396

Managing localized erosion of coastal bluffs

Boumievicz, W. J. Tanski, J.
State Univ. N. Y., Mar. Sci. Res. Cent., Stony Brook, N.Y., USA

Coastal zone '80

Edge, P. I. (EDITOR)
Second Symposium on coastal and ocean management,
Hollywood, FL, United States, Nov. 17-20, 1980
Proceedings of the Symposium on Coastal and Ocean Management
2, Vol. 3, 1981-186pp., 1980
11 REFS

Subfile B
Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: sketch map
Descriptors: geomorphology; New York; shore features;
engineering geology; bluffs; shorelines; erosion;
management; Long Island; United States; statistical
analysis; stabilization
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1099372 82 25046

**Gravitational spreading of steep-sided ridges ('sacking')
in western United States**

Radtchuk-Hall, D. H.; Varnes, D. J.; Savage, W. Z.
U. S. Geol. Surv., Menlo Park, CA, USA

**Section 13: The contribution of geology towards management
of the environment**

Jacobson, G. (convener)
Bur. Miner. Resour., Canberra, AUS
25th International geological congress, Sydney, Australia,
Aug. 16-25, 1976
Int. Assoc. Eng. Geol., Bull. 14, 23-35p., 1976
CODEN: BIEGR6 ISSN: 0014-1612 20 REFS

Subfile B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English Summary Languages: French
illus.: sketch map

Descriptors: Western U.S.; geomorphology; engineering
geology; mass movements; slope stability; sacking;
Gunnison County; Larimer County; Mancos Shale; Stillwater
Complex; United States; gravity sliding; Rocky Mountains;
North America; tectonics; Dolores Peak; Mount Massive;
Crested Butte; Colorado; fractures; shale; clastic rocks;
Montana; Loveland; Shrine Mountain; Bald Mountain; Mount
Nash; finite element analysis; statistical methods; shear
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1099133 82-18903

**Pouziti statistické entropie při interpretaci výsledku
měření metodou nabitého tělesa na sypaných hřezích
The application of statistical entropy in the interpretation
of electrical potential measurements in unconsolidated slopes**

Landa, I.; Skuthan, B.
Geol. Průzkum 19: 8, 243-245p., 1977
CODEN: GEYPAN ISSN: 0016-772X

Subfile B
Country of Publ.: Czechoslovakia
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Czech
illus.: 1 tables, sketch maps
Descriptors: Czechoslovakia; geophysical methods; ground
water; geophysical surveys; engineering geology;
electrical methods; surveys; electrical surveys; slope
stability; interpretation; Europe; statistical analysis;
entropy; hydrodynamics; Hracholusky
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1098326 82-19290

Slope process monitoring and data analysis, Texas Panhandle
Finley, R. J.; Howard, R. C.
Tex. Bur. Econ. Geol., Austin, TX, USA; Tex. Bur. Econ.
Geol., USA

Geology and geohydrology of the Palo Duro Basin, Texas Panhandle; a report on the progress of nuclear waste isolation feasibility studies (1980); annual report for period October, 1979 - September 30, 1980
Gustavson, T. C.; Bassett, R. L.; Finley, R. J.; Goldstein, A. G.; Handford, C. R.; McGowan, J. H.; Presley, M. W.; Baumgardner, R. W., Jr.; Bentley, M. E.; Dutton, S. P.; Griffin, J. A.; Hoadley, A. D.; Howard, R. C.; McGooker, D. A.; McGillis, K. A.; Palmer, D. P.; Ramondetta, P. J.; Roedler, E.; Simpkins, W. W.; Wiggins, W. D.
Univ. Tex. at Austin, Austin, TX, USA
Geological Circular - Texas, University, Bureau of Economic Geology, 81-3, 144-147p., 1981
CODEN TEGCA3 ISSN 0082-3309

Subfile B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus
Descriptors: *Texas; *automatic data processing; *geomorphology; *engineering geology; *processes; *waste disposal; *erosion features; *erosion; *United States; *radiactive waste; *Great Plains; *North America; *Panhandle; *slopes; *statistical analysis; *rates
Section Headings: 23 (SURFICIAL GEOLOGY, GEOMORPHOLOGY)

1098326 82-16271

Statistical analysis of lithologic interpretations from well logs
Presley, M. W.
Tex. Bur. Econ. Geol., Austin, TX, USA; Tex. Bur. Econ.
Geol., USA

Geology and geohydrology of the Palo Duro Basin, Texas Panhandle; a report on the progress of nuclear waste isolation feasibility studies (1980); annual report for period October, 1979 - September 30, 1980
Gustavson, T. C.; Bassett, R. L.; Finley, R. J.; Goldstein, A. G.; Handford, C. R.; McGowan, J. H.; Presley, M. W.; Baumgardner, R. W., Jr.; Bentley, M. E.; Dutton, S. P.; Griffin, J. A.; Hoadley, A. D.; Howard, R. C.; McGooker, D. A.; McGillis, K. A.; Palmer, D. P.; Ramondetta, P. J.; Roedler, E.; Simpkins, W. W.; Wiggins, W. D.
Univ. Tex. at Austin, Austin, TX, USA
Geological Circular - Texas, University, Bureau of Economic Geology, 81-3, 144-147p., 1981
CODEN TEGCA3 ISSN 0082-3309
Subfile B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus; strat. cols.
Descriptors: *Texas; *engineering geology; *geophysical surveys; *waste disposal; *well-logging; *Panhandle County; *Swisher County; *Ginrieta Formation; *San Andres Formation; *United States; *radioactive waste; *statistical analysis; *Palo Duro Basin; *salt; *lithofacies; *Permian Basin; *Panhandle; *Great Plains; *North America; *underground space; *interpretation; *lithostratigraphy
Section Headings: 06 (PETROLOGY, SEDIMENTARY)

1097970 82-18998

Sposob opredeleniya vodonasyshchennosti i glinistosti porody A means of determining the degree of water saturation and clay content of rocks
Orlov, I. I.; Karbov, Y. N.; Ippolov, V. G.
Neftegazovaya Geologiya i Geofizika 1981 8, 17-20p., 1981

CODEN NGGSAX ISSN: 0028-1182
Subfile B
Country of Publ.: Union of Soviet Socialist Republics
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Russian
illus
Descriptors: *geochemistry; *engineering geology; *properties; *petroleum engineering; *physicochemical properties; *reservoir rocks; *clay mineralogy; *saturation; *statistical analysis; *petroleum; *natural gas; *evaluation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1097914 82-18715

Discussion of "state of the art: laboratory strength testing of soils"

Christian, J. T.
Stone Webster Eng. Corp., Boston, MA, USA

Laboratory shear strength of soil

Young, R. N. (EDITOR); Townsend, F. C. (EDITOR)
Laboratory shear strength of soil, Chicago, IL, United States, June 25, 1980
ASTM Special Technical Publication-American Society for Testing and Materials Special Technical Publication 740, 638-640p., 1981
CODEN ASTMAB ISSN 0066-0558 3 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

Note: For reference to original article by Saada, A. S. and Townsend, F. C. see Symp. on Lab. Shear Strength of Soil, Chicago, Ill., p. 7-77, 1980.
Descriptors: soil mechanics; materials; properties; shear strength; finite element analysis; statistical methods; loading; applications; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1096984 82-19090

Regional characteristics of tsunamis along Pacific Coast of Hokkaido

Takahashi, S.; Yakuwa, I.
Natural Disaster Science 1, 1, 51-66p., 1979
12 REFS.

Subfile: B
Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: 5 tables, sketch maps
Descriptors: Japan; seismology; engineering geology; earthquakes; geologic hazards; tsunamis; Asia; wave analysis; Hokkaido; prediction; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1096941 82-19020

Nonlinear anisotropic stress-strain-strength behavior of soils

Prevost, J. H.
Princeton Univ., Dep. Civ. Eng., Princeton, NJ, USA; Univ. Fla., Gainesville, FL, USA

Laboratory shear strength of soil

Young, R. N. (EDITOR); Townsend, F. C. (EDITOR)
McGill Univ., Montreal, PQ, CAN
Laboratory shear strength of soil, Chicago, IL, United States, June 25, 1980
ASTM Special Technical Publication-American Society for Testing and Materials Special Technical Publication 740, 431-455p., 1981
CODEN ASTMAB ISSN 0066-0558 27 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: 2 tables

Descriptors: soil mechanics; applications; engineering properties; shear strength; stress; strain; behavior; consolidation; porous materials; pore pressure; deformation; equations; materials; properties; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1096798 82-18627

Consequence of an earthquake prediction on statistical estimates of seismic risk

Anderson, J. G.
Univ. Calif. at San Diego, Dep. Appl. Mech. and Eng. Sci., La Jolla, CA, USA
Bulletin of the Seismological Society of America 71: 5, 1637-1648p., 1981
CODEN BSSAAP ISSN 0037-1106 25 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table, sketch map
Latitude: N344500; N344500 Longitude: W1174000; W1185000
Description: seismology; earthquakes; geologic hazards; prediction; seismic risk; Los Angeles County; statistical analysis; case studies; California; United States; Southern California; active faults; faults; engineering geology
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

106621 82 17032

A simple and efficient method for introducing faults into finite element computations

Molodt, H. J., Ransky, A.
State Univ. N.Y., Dep. Earth and Space Sci., Stony Brook, NY, USA

Bulletin of the Seismological Society of America 71: 5, 1991 140p., 1981

CODEN PSSAAR ISSN 0037-1106 16 REFS

Subfile B

Country of Publ. United States

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages English

Descriptors: faults; seismology; rock mechanics; theoretical studies; numerical analysis; strain relaxation; finite element analysis; statistical methods; earthquakes; stick slip mechanics
Section Headings 19 (GEOPHYSICS, SEISMOLOGY)

106622 82 18539

Probabilistic approach to deformation and strength properties of shale mass

Kulatilake, P. H. S. W.

Ohio State Univ., Columbus, OH, USA

1980, 1981

Subfile B

Degree Level Doctoral

Country of Publ. United States

Doc Type THESIS Bibliographic Level MONOGRAPHIC

Languages English

Availability Univ. Microfilms
Descriptors: rock mechanics; deformation; materials; properties; theoretical studies; shale; yield strength; Cohesive Group; strength; probability; statistical analysis; geometry; Ohio; United States; Pennsylvania; Paleozoic; elastic rocks; materials; properties; young's modulus; elastic constants
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

106623 82 18535

Finite element consolidation analyses of tunnel behavior in clay

Johnston, P. R.

Stanford Univ., Stanford, CA, USA

27cp., 1981

Subfile P

Degree Level Doctoral

Country of Publ. United States

Doc Type THESIS Bibliographic Level MONOGRAPHIC

Languages English

Availability Univ. Microfilms
Descriptors: soil mechanics; tunnels; settlement; consolidation; finite element analysis; statistical methods; clay; clastic sediments; cohesive materials; loading
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1095957 82 18675

Nakopleniye i obrabotka inzhenerno-geologicheskoy informatsii

Accumulation and development of engineering geological work
Bondarik, G. K.

Spravochnik po inzhenernoy geologii

A handbook of engineering geology

Churinov, M. V. (EDITOR)

Publ. Izd. Nedra

203-216p., 1981

Ed. 3 8 REFS.

Subfile B

Country of Publ. Union of Soviet Socialist Republics

Doc Type BOOK Bibliographic Level ANALYTIC

Languages Russian

illus., 7 tables

Descriptors: automatic data processing; engineering geology; techniques; equations; statistical analysis; laboratory studies; data
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1094929 R2 19079

Raschet napryazhenno-deforyirovannogo sostoyaniya sistem
tselik krovaliya-pochva metodoy konechnykh elementov
Computation of stress in pillar-root-floor systems by finite
element analysis
Shirshov, V. P.

Mekhanika gornyykh porod
Advanced rock mechanics

Borisov, A. A (EDITOR)

Leningrad, Gorn. Inst., Zap. 82, 91-95p., 1980

CODEN ZLGIAY ISSN 0135-9500 4 REFS.

Subfile B

Country of Publ.: Union of Soviet Socialist Republics

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Russian

illus

Descriptors: rock mechanics; mining geology; theoretical
studies; practice; stress; roof control; pillars; finite
element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1094967 R2 18416

Modelling of soil-structure interaction by finite and
infinite elements

Medina, F.

Report - Earthquake Engineering Research Center, College of
Engineering, University of California, Berkeley, California
R043, Gp., 1980

ISSN 0271-0323 25 REFS.

Subfile B

Country of Publ.: United States

Doc Type: SERIAL REPORT Bibliographic Level: MONOGRAPHIC

Languages: English

Availability: NIS, Springfield, VA, United States

illus: 1 table

Descriptors: soil mechanics; foundations; theoretical
studies; mathematical methods; mathematical models; models
infinite models; finite element analysis; statistical
methods; seismic response; infinite element analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1094911 R2 18661

Free response of shells on flexible foundation

Beikun, P. M.; Vlas, J. C.

International conference on recent advances in geotechnical
earthquake engineering and soil dynamics, Vol. II

Prakash, S. (EDITOR)

International conference on recent advances in geotechnical
earthquake engineering and soil dynamics, St. Louis, MO.

United States, Apr. 26-May 3, 1981

Publ. Univ. Mo. at Rolla

805 R08p., 1981

3 REFS.

Subfile B

Country of Publ.: United States

Doc Type: BOOK: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus: 9 tables

Descriptors: soil mechanics; foundations; elasticity;
piles; earthquakes; finite element analysis; statistical
methods; velocity; Poisson's ratio; elastic constants;
shear modulus

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1094932 R2 18711

Stiffness coefficients for embedded footings

Chakrabartya, L. S.

International conference on recent advances in geotechnical
earthquake engineering and soil dynamics, Vol. II

Prakash, S. (EDITOR)

International conference on recent advances in geotechnical
earthquake engineering and soil dynamics, St. Louis, MO.

United States, Apr. 26-May 3, 1981

Publ. Univ. Mo. at Rolla

735-736p., 1981

4 REFS.

Subfile B

Country of Publ.: United States

Doc Type: BOOK: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus

Descriptors: soil mechanics; foundations; elasticity;
piles; footings; finite element analysis; statistical
methods; stiffness coefficients; earthquakes

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1003918 82 18731

Behavior of interfaces between structural and geologic media

Desai, D. S.
Va. Polytech. Inst. & State Univ., Dep. Civ. Eng.,
Blacksburg, VA, USA

International conference on recent advances in geotechnical earthquake engineering and soil dynamics; Vol. II

Prakash, S. (EDITOR)
International conference on recent advances in geotechnical earthquake engineering and soil dynamics, St. Louis, MO, United States, Apr. 26-May 3, 1981
Publ. Univ. Mo. at Rolla
619-638p., 1981
68 REFS.

Subfile B
Country of Publ.: United States
Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.

Descriptors: soil mechanics; deformation; loading; earthquakes; foundations; buildings; finite element analysis; statistical methods; shear; torsion; models; stress
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1003922 82-18986

Analysis of dynamic shear strain distributed in three dimensional earthdam models

Dimichev, I.

International conference on recent advances in geotechnical earthquake engineering and soil dynamics; Vol. I

Prakash, S. (EDITOR)
International conference on recent advances in geotechnical earthquake engineering and soil dynamics, St. Louis, MO, United States, Apr. 26-May 3, 1981
Publ. Univ. Mo. at Rolla
459-464p., 1981
5 REFS.

Subfile B
Country of Publ.: United States
Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., 3 tables

Descriptors: dams; site exploration; soil mechanics; earth dams; shear; three-dimensional models; models; strain; finite element analysis; statistical methods; vibration; earthquakes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1003786 82-18916

Seismic deformation of dams by correlative methods

Lin, Y. K.; Rodda, K. V.; Perry, C. W.; Gill, D. K.
Wahler Assoc., Palo Alto, CA, USA; Santa Clara Val. Water Dist., San Jose, CA, USA

International conference on recent advances in geotechnical earthquake engineering and soil dynamics; Vol. I

Prakash, S. (EDITOR)
International conference on recent advances in geotechnical earthquake engineering and soil dynamics, St. Louis, MO, United States, Apr. 26-May 3, 1981
Publ. Univ. Mo. at Rolla
425-430p., 1981
10 REFS.

Subfile B
Country of Publ.: United States
Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., 4 tables

Descriptors: California; engineering geology; dams; earthquakes; deformation; seismic response; United States; Gundalope Dam; Calero Dam; Almaden Dam; finite element analysis; statistical methods; Santa Clara Valley; triaxial tests
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

103375 82 19138

Method of influence function and its application

Wang, Y. S.; Wang, K. C.; Ho, T. Q.

International conference on recent advances in geotechnical earthquake engineering and soil dynamics; Vol. I

Prakash, S. (EDITOR)

International conference on recent advances in geotechnical earthquake engineering and soil dynamics. St. Louis, MO, United States, Apr. 26-May 3, 1981

Publ. Univ. Mo. at Rolla

355 358p. 1981

10 REFS

Subfile B

Country of Publ.: United States

Doc Type: BOOK

Level: ANALYTIC

Language: English

illus.: 2 tables

Descriptors: foundations; piles; applications; methods; soil mechanics; earthquakes; influence functions; statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

103376 82 18654

Load settlement characteristics and bearing capacity of clays under transient loads

Prasanna, P. M.; Prakash, S.; Arya, A. S.

International conference on recent advances in geotechnical earthquake engineering and soil dynamics; Vol. I

Prakash, S. (EDITOR)

International conference on recent advances in geotechnical earthquake engineering and soil dynamics. St. Louis, MO, United States, Apr. 26-May 3, 1981

Publ. Univ. Mo. at Rolla

203 288p. 1981

6 REFS

Subfile B

Country of Publ.: United States

Doc Type: BOOK

Level: ANALYTIC

Language: English

Descriptors: soil mechanics; materials; properties; loading; transient loading; earthquakes; clay; elastic sediments; finite element analysis; statistical methods; materials; properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Uniform cycles in earthquakes; a statistical study

Halder, A.

Ge Inst Technol., Sch. Civ. Eng., Atlanta, GA, USA

International conference on recent advances in geotechnical earthquake engineering and soil dynamics; Vol. I

Prakash, S. (EDITOR)

International conference on recent advances in geotechnical earthquake engineering and soil dynamics. St. Louis, MO, United States, Apr. 26-May 3, 1981

Publ. Univ. Mo. at Rolla

195 198p. 1981

4 REFS

Subfile B

Country of Publ.: United States

Doc Type: BOOK

Level: ANALYTIC

Language: English

illus.: 1 table

Descriptors: soil mechanics; earthquakes; liquefaction; effects; loading; cyclic loading; stress

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

103354 82-19045

An analytical method for determination of earth pressure acting on tunnel lining in viscoelastic medium

Sakurai, S.

Rock Mechanics in Japan 2. 93-95p. 1974

1 REFS

Subfile B

Country of Publ.: Japan

Doc Type: SERIAL

Language: English

illus.

Descriptors: tunnels; rock mechanics; excavations; earth pressure; creep; mechanics; methods; viscosity; plasticity; techniques; finite element analysis; statistical methods; slope stability; experimental studies

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1093348 82-19010
Zonizzazione sismica del Gargano: analisi statistiche
Seismic zoning of Gargano: statistical analysis
 Peronchi, M.
 Boll. Geofis. Teor. Appl. 27 85. 23-28p. 1980
 CODEN BGIAAE ISSN: 0006-6729
 Subfile B
 Country of Publ.: Italy
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: Italian Summary Languages: English
 2 tables, sketch map
 Latitude: N4040'00" Longitude: E01670'00" E01470'00"
 Descriptors: Italy; *seismology; engineering geology;
 earthquakes; seismic risk; Europe; statistical analysis;
 Gargano; seismic zoning
 Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)
 expansive soils; Characterization and treatment of expansive
 soils for engineering design
 Sneath, D. R. (EDITOR)
 Okla. State Univ., Stillwater, OK, USA
 Fourth international conference on expansive soils,
 characterization and treatment of expansive soils for
 engineering design, Denver, CO, United States, June 16-18,
 1980
 Proceedings of the International Conference on Expansive
 Soils 4. 551-557p. 1980
 ISBN: 0-87262-245-2 8 REFS
 Subfile B
 Country of Publ.: United States
 Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 Descriptors: *soil mechanics; *foundations; materials;
 properties; expansive materials; models; finite element
 analysis; statistical methods; behavior; stress; strain;
 deformation; materials; properties
 Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1093321 82-19018
Sedimentology, geochemistry and discriminant analysis in the
engineering geological investigation of damsites, lower Gordon
area, Tasmania
 Pirasada Rao, C.; Nagvi, I. H.
 Univ. Tasmania, Dep. Geol., Hobart, Tas., AUS.
 Hydro Electric Comm., AUS.
 Journal of the Geological Society of Australia 28 2.
 141-157p. 1981
 CODEN JGCSAO ISSN: 0016-7614 33 REFS.
 Subfile B
 Country of Publ.: Australia
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus., sects., strat. cols., geol. sketch map
 Latitude: S4200'00" Longitude: E14500'00" E14500'00"
 Descriptors: Tasmania; *sedimentation; *sedimentary rocks;
 *diagenesis; *automatic data processing; sedimentary
 petrology; stratigraphy; lithostratigraphy; sedimentary
 dolomitization; engineering geology; Ordovician;
 environmental analysis; intertidal sedimentation; dams;
 Australia; discriminant analysis; statistical methods;
 folds; Paleozoic; anticlines; nearshore environment;
 models; Gordon River; lithofacies; micrite; carbonate
 rocks; sparite; Gordon Limestone; Butler Island formation;
 porosity; serpage; chemical composition; sedimentary
 structures; limestone; dolostone
 Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1093073 82-14095
A model for slab foundations on expansive soils
 Tsotsos, S. S.
 Proceedings of the Fourth International Conference on

1091072 82 13679

Modelling climatic effects on clay beneath slabs

Corley, J R
Univ Tex, Dep Civ Eng, Arlington, TX, USA

Proceedings of the Fourth international conference on expansive soils: Characterization and treatment of expansive soils for engineering design

Speitlen, D R (EDITOR)

Okla State Univ, Stillwater, OK, USA

Fourth international conference on expansive soils: characterization and treatment of expansive soils for engineering design. Denver, CO, United States, June 16-19, 1980

Proceedings of the International Conference on Expansive

Soils 4, 533-550p, 1980

ISBN 0-97262-245-2 12 REFS

Subfile B

Country of Publ: United States

Doc Type SERIAL CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Languages English

4 tables

Descriptors: soil mechanics; automatic data processing; materials; properties; engineering geology; expansive materials; models; moisture; clay soils; soils; drainage; finite element analysis; statistical methods; Darcy's law; forams; methods; materials; properties

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1092589 82 13288

Two-phase flow simulation of air storage in an aquifer

Marini, D

MUS Corp, Rockville, MD, USA

Water Resources Research 17, 5, 1369-1385p, 1981

CODEN WRERAQ ISSN 0043-1337 17 REFS

Subfile B

Country of Publ: United States

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages English

Descriptors: ground water; engineering geology; aquifers; materials; properties; compressed air; mathematical models; models; finite element analysis; statistical methods; storage; simulation; applications; two phase models; permeability; materials; properties

Section Headings 21 (HYDROGEOLOGY AND HYDROLOGY)

1091684 82 14048

Landslide potential prediction for watersheds

Simons, D R; Ward, T J; Li, P

Colo State Univ, Dep Civ Eng, Fort Collins, CO, USA

Hydraulic engineering for improved water management

Friedrich, R (EDITOR)

Seventeenth congress of the International Association for Hydraulic Research: Hydraulic engineering for improved water management. Baden-Baden, Germany, Federal Republic of, Aug 15-17, 1977

Int Assoc Hydraul Res, Congr, Proc, 17, Vol. 6,

1977 157p, 1977

CODEN PCIR03 12 REFS

Subfile B

Country of Publ: Varies

Doc Type SERIAL CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Languages English Summary Languages: French

Tables: sketch maps

Descriptors: hydrology; slope stability; rivers and streams; landslides; sediment yield; prediction; watersheds; automatic data processing; engineering geology; maps; cartography; probability; vegetation; Monte Carlo analysis; shear strength

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1091527 82 13972

A budai agyagok mernokgeologiai osszehasonlitas matematikai statisztikai alapon

Engineering geologic comparison of Buda clays by statistical analysis

Pal, T

Enghr Kozl, 106, 3, 229-256p, 1976

CODEN FOKUAG ISSN 0015-542X 20 REFS

Subfile B

Country of Publ: Hungary

Doc Type SERIAL Bibliographic Level: ANALYTIC

Languages Hungarian

4 tables

Latitude: N47000; N474000 Longitude: E019000; E0190000
Descriptors: Hungary; soil mechanics; engineering geology; materials; properties; clay; Europe; materials; properties; clastic sediments; Budapest region; statistical analysis

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1091503 82-13836

Nehany Salgotarjan környeki uledkes kozet talajfizikai
Jellemzőinek matematikai statisztikai vizsgálat
Soil physical characteristics of some sedimentary rock
samples from the Salgotarjan region based on statistical
analysis

Kol L. J.

Földt. Koezl. 108 2. 199-212p. 1978

CODEN FOKO49 ISSN 0015-542X

Subfile B

Country of Publ. Hungary

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages Hungarian Summary Languages English

illus. 3 tables, sketch map

Latitude: N480000; N481000 Longitude: E0194500; E0194500

Descriptors Hungary; soil mechanics; sedimentary rocks

; stratigraphy; engineering geology; materials; properties

; Cenozoic; statistical analysis; Europe; materials;

properties; Phanerozoic; lithostratigraphy; Salgotarjan

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1091290 82-13701

The use of geostatistics in high level radioactive waste
repository site characterization

Doctor, P. G.

Battelle Pacific Northwest Lab., Richland, WA, USA

Radioactive Waste Management 1. 2. 193-210p. 1980

CODEN RWMADW ISSN: 0142-2405 17 REFS.

Subfile B

Country of Publ. International

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages English

illus. 1 table, sketch maps

Latitude: N462500; N464500 Longitude: W1192500; W1195000

Descriptors Washington; ground water; maps;

engineering geology; surveys; cartography; waste disposal;

Benton County; Grant County; Franklin County; United

States; radioactive waste; Hanford Atomic Energy Reservation

; site exploration; basalt; basalt family; statistical

analysis; levels; Pasco Basin

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1091054 82-14108

The finite element method applied to large elasto-plastic
deformations of solids

Voyiadjis, G. Z

Univ. Pet. Miner., Dep. Civ. Eng., Dhahran, SAU

Arabian J. Sci. Eng. 4. 1. 41-46p. 1979

CODEN AJSEDR ISSN: 0377-9211 9 REFS.

Subfile B

Country of Publ. Saudi Arabia

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages English Summary Languages Arabic

illus.

Descriptors rock mechanics; deformation; finite

element analysis; statistical methods; methods; scaling phase

; equations; elasticity; plasticity; stress; strain

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1090991 82-13891

Strength-index test of rocks from Iraq

Mashhour, M.; Berikani, M

Al-Mustansiriyah Univ., Dep. Appl. Geol., Baghdad, Iraq

Iraqi J. Sci. 21 2. 360-371p. 1980

ISSN 0067-2904 10 REFS.

Subfile B

Country of Publ. Iraq

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages English Summary Languages Arabic

illus. 1 table, sketch map

Descriptors Iraq; rock mechanics; engineering geology;

materials; properties; strength; Middle East;

sedimentary rocks; igneous rocks; metamorphic rocks;

rebound hardness; statistical analysis; materials;

properties; Gercus Formation; Upper Ercs formation; Gercus

Sandstone Formation

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1090561 82-13662

An empirical analysis of the source of energy release during the October 15, 1979 Imperial Valley earthquake

Combelli, K. W.; Polit, M. W.
Terra Corp., Berkeley, CA, USA

Seismological Society of America, 76th annual meeting

Anonymous
Seismological Society of America, 76th annual meeting,
Berkeley, CA, United States, March 23-25, 1981
Earthquake Notes 52 1, 85p., 1981
CODEN: EAGNAT ISSN: 0012-8287

Subfile B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

Latitude: N374000; Longitude: W1161500; W1161500
Descriptors: California; seismology; engineering geology;
earthquakes; geologic hazards; relaxation energy;
Imperial County; United States; Southern California;
Imperial Valley; statistical analysis; strong motion;
ground motion; peak ground acceleration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1090557 82-13899

Analysis of incoherent energy in near field accelerograms

McLaughlin, K. L.; Johnson, L. R.
Univ. Calif., Seismogr. Stn., Berkeley, CA, USA

Seismological Society of America, 76th annual meeting

Anonymous
Seismological Society of America, 76th annual meeting,
Berkeley, CA, United States, March 23-25, 1981
Earthquake Notes 52 1, 83p., 1981
CODEN: EAGNAT ISSN: 0012-8287

Subfile B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

Latitude: N370000; Longitude: W1161000; W1160000
Descriptors: Nevada; seismology; engineering geology;
explosions; ground motion; Nye County; United States;
Nevada Test Site; Pahute Mesa; accelerograms; near-field
spectra; elastic waves; scattering; wave dispersion;
raypaths; velocity; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1090540 82-13970

Probability that another intensity X event could occur in

the S. E. during a 200 year period
Ormsby, M. R.
Ga. Inst. Technol., Sch. Geophys. Sci., Atlanta, GA, USA

Seismological Society of America, 76th annual meeting

Anonymous
Seismological Society of America, 76th annual meeting,
Berkeley, CA, United States, March 23-25, 1981
Earthquake Notes 52 1, 74p., 1981
CODEN: EAGNAT ISSN: 0012-8287

Subfile B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

Descriptors: Atlantic Coastal Plain; seismology; South
Carolina; earthquakes; engineering geology; geologic
hazards; seismic risk; Charleston County; North America;
Southern Atlantic Coastal Plain; United States; Charleston;
Seismic intensity; probability; prediction
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1090406 82-14032

Problems and pitfalls of using Bayesian models for seismic hazard analysis

Schoof, C. C.; Mortgat, C. P.; Shah, H. C.
Stanford Univ., John A. Blume Earthquake Eng. Cent.,
Stanford, CA, USA

Seismological Society of America, 76th annual meeting

Anonymous
Seismological Society of America, 76th annual meeting,
Berkeley, CA, United States, March 23-25, 1981
Earthquake Notes 52 1, 9p., 1981
CODEN: EAGNAT ISSN: 0012-8287

Subfile B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

Descriptors: geologic hazards; earthquakes; automatic
data processing; engineering geology; effects; seismic
risk; California; United States; Central California; San
Francisco Bay region; seismology; Bayesian analysis;
statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

DIALOG Filters GEOREF - 61-82/Sep (Copr. American Geological Institute) (Item 151 of 1356) User 5208 2sep82

1090404 82-13717

Estimates of intensities and damage for California earthquakes

Evernden, J. F.
U. S. Geol. Surv., Menlo Park, Ca. USA

Seismological Society of America. 76th annual meeting

Anonymous
Seismological Society of America. 76th annual meeting.
Berkeley, CA, United States. March 23-25, 1981
Earthquake Notes 52. 1. 8p. 1981

CODEN: EAOMAT ISSN: 0012-8287

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

Descriptors: *California; *seismology; earthquakes; engineering geology; geologic hazards; seismic intensity; Santa Barbara County; San Francisco County; United States; Central California; San Francisco Bay region; seismic risk; Southern California; Lompoc; damage; cost; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1089688 82-14112

Filtration: an application of a statistical approach to filters and filter fabrics

Wates, J. A.

Proceedings of the Seventh regional conference for Africa on soil mechanics and foundation engineering

Gidigisu, M. O. (EDITOR); Hammond, A. A. (EDITOR); Gogo, J. O. (EDITOR)
Seventh regional conference for Africa on soil mechanics and foundation engineering. Accra, Ghana. June 1980
Soil Mech. Found. Eng. Reg. Conf. Afr., Proc. 7. 433-440
p. 1980

CODEN: SWATBS ISBN: 90-6191-093-5 9 REFS.

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

Descriptors: *South Africa; engineering geology; dams; filtration; design; construction; tailings; Africa; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1089637 82-13719

Statistical analysis of sand liquefaction

Fardis, M. N.; Veneziano, D.
Mass. Inst. Technol., Dep. Civ. Eng., Cambridge, MA, USA
Journal of the Geotechnical Engineering Division 107: GT 10
1361-1377p. 1981

CODEN: AUGER6 ISSN: 0093-6405 37 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.: 3 tables
Descriptors: *soil mechanics; *mathematical geology; materials; properties; methods; liquefaction; stochastic processes; sand; clastic sediments; Standard Penetration Test; shear stress; sample preparation; in situ; S-waves; pore pressure; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1089362 82-13866

Fundamental studies on mechanical excavation of rock with roller cutters

Kuriyagawa, M.; Misawa, S.; Hayamizu, H.

Rock Mechanics in Japan 3. 146-148p. 1979

Subfile: B

Country of Publ.: Japan

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.: 1 table
Descriptors: *rock mechanics; failures; excavations; theoretical studies; experimental studies; mechanism; finite element analysis; statistical methods; stress; elasticity; plasticity; instruments
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1089351 82-13047

Cave-in due to mining at shallow depths

Nishida, T.; Kameda, N.
Rock Mechanics in Japan 3, 111-113p., 1979
Subfile: B
Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table
Descriptors: rock mechanics; geologic hazards; land subsidence; failures; mining; underground space; finite element analysis; statistical methods; Young's modulus; elastic constants; Poisson's ratio
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1089339 82-13914

The method of elasto-plastic analysis for underground excavations in consideration of the post-failure properties of rocks

Mizuta, Y.; Ogino, S.; Lee, H.; Oka, Y.; Hiramatsu, Y.
Rock Mechanics in Japan 3, 105-107p., 1979
1 REF.
Subfile: B
Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table
Descriptors: rock mechanics; tunnels; excavations; methods; underground installations; rocks; plasticity; analysis; failures; behavior; stress; strain; uniaxial tests; finite element analysis; statistical methods; tensile strength
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1089346 82-13853

Stability analysis of a submerged cut slope with consideration for stress-path dependence

Kubayashi, Y.; Hashimoto, T.; Ichikawa, Y.
Rock Mechanics in Japan 3, 96-98p., 1979
1 REF.
Subfile: B
Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table
Descriptors: soil mechanics; slope stability; site exploration; excavations; foundations; analysis; finite element analysis; statistical methods; stress; soil profiles; granodiorite; granite-granodiorite family; triaxial tests; deformation; shear; failures; bridges
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1089342 82-13794

A study of roadway closure

Iihara, M.; Matsui, K.
Rock Mechanics in Japan 3, 83-85p., 1979
Subfile: B
Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table
Descriptors: rock mechanics; highways; applications; finite element analysis; stress; statistical methods; analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1089334 82-14137

Physical and mechanical properties of soft rocks and its bearing capacity

Yoshinaka, R.
Rock Mechanics in Japan 3, 53-55p., 1979
5 REF.
Subfile: B
Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table
Descriptors: foundations; sedimentary rocks; materials; properties; clastic rocks; bearing capacity; mudstone; physical properties; mechanical properties; expansive materials; triaxial tests; rock mechanics; properties; analysis; statistical methods; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1088012 82-12619

Multiaxial testing to determine material behavior for design of energy related structures

Sture, S.; Atkinson, R. H.; Ko, H. Y.
Va Polytech. Inst. and State Univ., Blacksburg, VA, USA;
Univ. Colo. Boulder, Boulder, CO, USA

High-pressure science and technology; Vol. 2, Applications and mechanical properties

Timmerhaus, K. D. (EDITOR); Barber, M. S. (EDITOR)
Sixth AIRAPT International high pressure conference,
Boulder, CO, United States, July 25-29, 1977
Proceedings of the AIRAPT International High Pressure
Conference 6, 272-284p., 1979
ISBN 0-106-40069-3 21 REFS.

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

Descriptors: geophysics; rock mechanics; experimental
studies; materials; properties; high pressure; elastic
properties; materials; properties; oil shale; Colorado;
United States; plasticity; finite element analysis;
Statistical methods
Section Headings: 17 (GEOPHYSICS, GENERAL)

1088538 82-13929

Statistical investigation of the mechanics controlling radionuclide sorption; Part II

Mucciardi, A.; Rook, L. J.; Orr, E. C.; Cleveland, D.
Adaptronics, McLean, VA, USA

Proceedings of the Task 4, Waste Isolation Safety Assessment Program, Second contractor information meeting; Volume II

Saine, R. J. (chairperson)
Waste Isolation Safety Assessment Program, Second contractor
information meeting, Seattle, WA, United States, Oct. 1-5,
1978

333 425p., 1978

3 REFS.

Subfile: B

Doc Type: REPORT; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

Report No.: PNL-SA-7352

Availability: Batelle Mem. Inst., Pacific Northwest Lab.,
Richland, WA, United States

Note With discussion. Prepared for U. S. Dep. Energy,
Off. Nucl. Waste Isol., illus., tables
Descriptors: geochemistry; technetium; strontium; cesium
; neptunium; americium; plutonium; automatic data
processing; waste disposal; isotopes; processes;

engineering geology; radioactive waste; abundance;
adsorption; radioactive isotopes; silicates; shale;
clastic rocks; granite; granite-granodiorite family;
limestone; carbonate rocks; basalt; basalt family;
mathematical models; models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1088114 82-08760
Sandia Lab., USA

Statistical data for movements on young faults of the conterminous United States; paleoseismic implications and regional earthquake forecasting

Shaw, H. R.; Gartner, A. E.; Iusso, F.
U. S. Geol. Surv., Menlo Park, CA, USA
Open-File Report (United States Geological Survey, 1978)
81-0946, 377p., 1981
CODEN: XGRDAG ISSN: 0196-1497 24 REFS.

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL: REPORT Bibliographic Level: MONOGRAPHIC
Language: English

Availability: U. S. Geol. Surv., Open-File Serv. Sect.,
West. Distrib. Branch, Denver, CO, United States
illus., 16 tables, sketch maps

Descriptors: United States; seismology; structural
geology; earthquakes; engineering geology; neotectonics;
geologic hazards; prediction; USGS; conterminous regions;
statistical analysis; faults; displacements; active faults;
seismotectonics

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1087178 R2 DRG72

Thermal and thermomechanical data from in situ heater experiments at Stripa, Sweden

Chen, T.; Binnall, E.; Nelson, P.; Stolzman, R.; Wan, D.; Weaver, C.; Aug, K.; Bailey, J.; McEwen, M.
Lawrence Berkeley Lab., Berkeley, CA, USA
LBL (Lawrence Berkeley Laboratory), Energy and Environment Division 11477, 226p, 1980
CODEN LBLDHH ISSN 0195-721X 15 REFS

Subfile B
Country of Publ.: United States
Doc Type: SERIAL; REPORT Bibliographic Level: MONOGRAPHIC
Languages: English
Report No. SAC 29, UC 70
Availability: NIS, Springfield, VA, United States
Swedish American Cooperative Program on Radioactive Waste Storage in Mined Caverns in Crystalline Rock, illus., 43 tables

Descriptors: Sweden; automatic data processing; rock mechanics; engineering geology; materials; properties; waste disposal; granite; underground installations; radioactive waste; experimental studies; materials; properties; granite granodiorite family; thermal properties; stress; statistical analysis; computer programs; instruments; algorithms; data storage; Europe; Stripa
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1087167 R2 U9159

The effect of pore structure on the mechanism of the water-drive of oil

Yang Puhua
Acta Pet Sin issue, 103 112p, 1980
3 REFS

Subfile B
Country of Publ.: China
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Chinese Summary languages: English
In Commemoration of the twentieth anniversary of Dagang oil field, illus., 4 tables, 2 plates
Descriptors: China; engineering geology; sedimentary rocks; petroleum engineering; properties; porosity; Asia; porous materials; reservoir rocks; pore water; pressure; petroleum; statistical analysis; Lamadian oil field; Saitu oil field; Xingshuigang oil field; SEM data; flow mechanism; heterogeneous materials
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1087000 R2-09165

Effects of erosion control structures along a portion of the northern Chesapeake Bay shoreline

Zabala, C. F.; Keating, R. T.; Bayley, S.

M4 Dep Nat. Resource, Coast. Zone Manage. Program.
Annapolis, MD, USA, La. State Univ., USA
Environ. Geol. 3: 4, 201-211p, 1981
CODEN ENGECG ISSN 0099-0094 42 REFS.

Subfile B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., 3 tables, sketch maps
Latitude: N385300; N385300 Longitude: W0763000; W0763000
Descriptors: Maryland; sedimentation; shorelines; engineering geology; processes; textures; shorelines; coastal processes; grain size; Anne Arundel County; Chesapeake Bay; United States; Mayo Peninsula; Atlantic Coastal Plain; North America; erosion; controls; bulkheads; groins; transport; coastal environment; sorting; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1086998 R2 08870

Application of discriminant analysis and Manova to grain-size data on a study of the distribution and movement of dredged sediment

Alther, G. R.; Wyeth, R. K.
NAIRO Environ. Serv., Northbrook, IL, USA; Great Lakes Lab., USA
Environ. Geol. 3: 4, 185-193p, 1981
CODEN ENGECG ISSN 0099-0094 25 REFS.

Subfile B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., sketch map
Latitude: N415746; N415746 Longitude: W0804744; W0804744
Descriptors: iron; sedimentation; zinc; Ohio; automatic data processing; sedimentation; abundance; engineering geology; distribution; transport; waste disposal; statistical analysis; lacustrine processes; Ashtabula County; United States; Lake Erie; Great Lakes; Ashtabula; dredge spoils; solid waste; lacustrine environment; grain size; discriminant analysis; statistical methods; Manova; environmental geology
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1086805 82-09213
Distribution of landslides in the Wairarapa hill country
 Crozier, M. J.; Eyles, R. J.; Marx, S. L.; McConchie, J. A.;
 Owen, R. C. Geophys. 23, 5-6, 575-586p, 1980
 CODEN NEZDAY ISSN 0028-8306 37 REFS
 Subfile: B
 Country of Publ.: New Zealand
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.: 6 tables
 Descriptors: *New Zealand; *geomorphology; engineering
 geology; mass movements; slope stability; landslides;
 Australasia; Wairarapa; North Island; Masterton;
 statistical analysis; aerial photography; mudflows;
 Pakaraka; rainfall; distribution
 Section Headings: 23 (SURFICIAL GEOLOGY, GEOMORPHOLOGY)
 Languages: English
 illus.: 2 tables
 Descriptors: *California; engineering geology; dams;
 Oroville Dam; United States; earthquakes; finite element
 analysis; statistical methods; earth dams; mathematical
 models; models; seismic response; accelerograms; stress;
 displacements
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1084088 82-08727
Dynamic plastic analysis using stress resultant finite element formulation
 Lukknaprasit, P.; Kelly, J. M.
 Report - Earthquake Engineering Research Center, College of
 Engineering, University of California, Berkeley, California
 77/21, 46p., 1977
 ISSN: 0271-0323 44 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
 Languages: English
 illus.: 1 table
 Descriptors: *automatic data processing; earthquakes;
 deformation; engineering geology; effects; theoretical
 studies; plasticity; finite element analysis; statistical
 methods; strain; nuclear facilities; seismic response;
 design; algorithms; loading; viscoelasticity; creep
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1085177 82-09045
The practice of mining geostatistics in 1980
 Marechal, A.
 Ecole Natl. Super. Mines, Cent. Geostat., Fontainebleau, FRA
Special issue on statistics in earth sciences
 Mardia, K. V. (EDITOR)
 Univ. Leeds, Dep. Stat., Leeds, GBR
 Communications in Statistics. Theory and Methods A10: 15,
 1545-1558p., 1981
 CODEN CSTMPC ISSN 0361-0926 18 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 Descriptors: *mining geology; *automatic data processing;
 practice; engineering geology; statistical analysis; mines
 ; assays; reserves; probability; linear regression; site
 exploration; digital simulation; anomalies; three-dimensio-
 nal models; models
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1084196 82-09148
Dynamic FEM model of Oroville Dam
 Wywood, J.
 Dep. Water Resour., Div. Saf. Dams, CA, USA
 Journal of the Geotechnical Engineering Division 107: G18,
 1057-1075p., 1981
 CODEN AJGEB6 ISSN 0093-6405 17 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC

1083841 82-08699

A numerical field and laboratory study of flow in rocks with deformable fractures

Gale, J. E.
Environ. Can., Inland Waterways Div., Ottawa, ON, CAN
Scientific Series - Inland Waters Directorate 72, 145p., 1977

CONF. CIMSAD ISSN 0318-5850 ISBN 0-662-01805-2 106
REFS

Subfile: B
Country of Publ: Canada
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
Languages: English Summary Languages: French
illus., 18 tables, sketch maps
Descriptors: Nova Scotia; rock mechanics; ground water;
California; engineering geology; materials; properties;
hydrogeology; surveys; aquifers; Canada; materials;
properties; numerical models; flows; deformation;
fractures; Sarnia; Halifax County; fluid pressure;
liniments; well-logging; periscope logs; uniaxial tests;
quartz monzonite; granite gneiss; injection;
finite element analysis; statistical methods; permeability;
United States; granites; Raymond; Cold Springs Quarry
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1083831 82-08942

Seismic response of underground openings

Emery, J. J.; Joshi, V. H.
McMaster Univ., Dep. Civ. Eng., Hamilton, ON, CAN; The Trow
Group, CAN

Underground rock engineering: 13th Canadian rock mechanics symposium (the H. R. Rice memorial symposium)

De Lory, F. A. (chairperson)
Univ. Toronto, Toronto, ON, CAN
Underground rock engineering: 13th Canadian rock mechanics
Symposium (the H. R. Rice memorial symposium), Toronto, ON,
Canada, May 28-29, 1980
Special Volume - Canadian Institute of Mining and Metallurgy
22, 177-186p., 1980
CODEN: CIMSAD ISSN 0576-5447 9 REFS.

Subfile: B
Country of Publ: Canada
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus., 1 table
Descriptors: tunnels; rock mechanics; waste disposal;
methods; radioactive waste; seismic response; aseismic
design; excavations; shafts; ground motion; surface waves;
S-waves; coherent motion; finite element analysis;
statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1083823 82-08978

Advancing face simulation of tunnel excavations and lining placement

Hanafi, E. A.; Emery, J. J.
Stone and Webster Can., Toronto, ON, CAN; McMaster Univ.,
CAN

Underground rock engineering: 13th Canadian rock mechanics symposium (the H. R. Rice memorial symposium)

De Lory, F. A. (chairperson)
Univ. Toronto, Toronto, ON, CAN
Underground rock engineering: 13th Canadian rock mechanics
Symposium (the H. R. Rice memorial symposium), Toronto, ON,
Canada, May 28-29, 1980
Special Volume - Canadian Institute of Mining and Metallurgy
22, 119-125p., 1980
CODEN: CIMSAD ISSN 0576-5447 16 REFS.

Subfile: B
Country of Publ: Canada
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus., 3 tables, sects.
Descriptors: tunnels; rock mechanics; excavations;
models; stress; finite element analysis; statistical
methods; elastoplastic materials; linings; radial loading;
axial loading; advancing faces
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1083809 82-09061

A study of inclined hydraulic fracturing in brittle and impermeable rock

Mizuta, Y.; Kobayashi, H.
Univ. Minnesota, Minneapolis, MN, USA

Underground rock engineering: 13th Canadian rock mechanics symposium (the H. R. Rice memorial symposium)

De Lory, F. A. (chairperson)
Univ. Toronto, Toronto, ON, CAN
Underground rock engineering: 13th Canadian rock mechanics symposium (the H. R. Rice memorial symposium), Toronto, ON, Canada, May 28-29, 1980
Special Volume - Canadian Institute of Mining and Metallurgy 22, 17-23p., 1980
CODEN: CIMSAD ISSN: 0576-5447 10 REFS.

Subfile: B
Country of Publ.: Canada
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table, block diag.
Descriptors: rock mechanics; methods; stress; hydraulic fracturing; brittle materials; impermeable materials; granite; granite-granodiorite family; boreholes; biaxial tests; fractures; in situ; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1083469 82-08827

Determination of spatial dependence in fracture set characteristics by geostatistical methods

Miller, S. M.
Univ. of Arizona, Tucson, AZ, USA
11p., 1979

Subfile: B
Degree Level: Master's
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Descriptors: fractures; rock mechanics; distribution; deformation; spatial distribution; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1082771 82-03976

Estimating mine pillar strength from compression tests

Parek, L. A.
U. S. Bur. Mines, Denver Fed. Cent., Denver, CO, USA
Transactions of the American Institute of Mining, Metallurgical, and Petroleum Engineers Incorporated 268, 1749-1761p., 1980

CODEN: TMENAE ISSN: 0096-4778 38 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Note: AIME annual meeting, New Orleans, La., Feb. 1979.
illus.: 1 table
Descriptors: rock mechanics; mining geology; underground installations; theoretical studies; methods; mines; strength; pillars; compression; mathematical models; models; statistical analysis; equations; multivariate analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1082062 82-04112

Interpretation of the results of a rock mechanical test program for a powerhouse cavern by means of numerical analyses

Wittke, W.; Pilschke, B.; Hosang, K. H.
Hurlimann, H. (chairperson)
4th international congress on rock mechanics, Montreaux, Switzerland, Sept. 2-8, 1979
Proceedings of the Congress of the International Society for Rock Mechanics 4, Vol. 3, 199-208p., 1979
CODEN: 32ZUA4 ISSN: 0074-848X ISBN: 90-6191-049-8 5 REFS.
Subfile: B

Country of Publ.: Varies
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table, block diag.
Descriptors: Taiwan; rock mechanics; engineering geology; excavations; tunnels; Asia; interpretation; finite element analysis; statistical methods; stress; strain; underground installations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

- 1081155 82 03476
Korrelation lithofazieller und bodenmechanischer Eigenschaften von Sedimenten des Kuestenholozäns der suedlichen Nordsee mit multivariaten statistischen Methoden
 Correlation of lithofacies and soil mechanics properties of the Holocene coastal sediments of the southern North Sea with multivariate statistical methods
 Ludwig, I
 Berl.: Geowissenschaftliche Abh., Reihe A 31, 88p., 1980
 CODEN: RGAAAD ISSN: 0172-8784 107 REFS.
 Subfile: B
 Country of Publ.: Germany, Federal Republic of
 Doc Type: SERIAL; MAP Bibliographic Level: MONOGRAPHIC
 Languages: German Summary Languages: English
 Note: Doctoral thesis, Freie Univ. Berlin.
 Tables, Sects.: 8 plates; 10p. index maps
 Latitude: N532000, N534000 Longitude: E0084500; E0070500
 Description: West Germany; soil mechanics; engineering geology; materials; properties; stratigraphy; sediments; Holocene; Germany; Europe; Quaternary; lithofacies; classification; Ender; Wilhelmshaven; Bremerhaven; size distribution; ignition loss; porosity; moisture; consistency limits; bulk weight; activity; shear strength; angle of friction; undrained shear strength; compression modulus; multivariate analysis; statistical analysis; discriminant analysis; statistical methods; bogs; gullies; tidal flats; principal components analysis; materials; properties; cluster analysis; correlation; lith
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY.)
- 1080064 82-04014
Comparative ground response studies in Los Angeles using MTS nuclear explosions and San Fernando earthquake data
 Rogers, A. M.; Covington, P. A.; Rorcherdt, R. D.; Tinsley, J. C., III
 U. S. Geol. Surv., Denver, CO, USA
 Proceedings of Conference XIII: Evaluation of regional seismic hazards and risk
 Hays, W. W. (EDITOR)
 Evaluation of regional seismic hazards and risk. Santa Fe, NM, United States. Aug. 25-27, 1980
 Open-File Report (United States Geological Survey. 1978)
 81-0437, 143-161p., 1981
 CODEN: XGRDAG ISSN: 0196-1497 5 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL; REPORT: CONFERENCE PUBLICATION
 Bibliographic Level: ANALYTIC
 Languages: English
 Availability: U. S. Geol. Surv., Open-File Serv. Sect., West Distrib. Branch, Denver, CO, United States
 Illus.: 2 tables, sketch maps
 Latitude: N334500; N344500 Longitude: W1174000; W1185000
 Descriptors: California; seismology; Nevada; engineering geology; earthquakes; geologic hazards; explosions; ground motion; Los Angeles County; Nye County; USGS; seismic risk; United States; Southern California; San Fernando Valley; Nevada test site; nuclear explosions; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

- 1080779 82 03990
Slope stability analysis and design based on probability techniques at Cassiar Mine
 Piteau, D. R.; Martin, D. C.
 D. P. Piteau and Assoc., West Vancouver, BC, CAN
 CIM Bulletin (1974) 70: 779, 139-150p., 1977
 ISSN: 0317-0926 5 REFS.
 Subfile: A
 Country of Publ.: Canada
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 Illus.: 2 tables, sect.
 Latitude: N591000; N593000 Longitude: W1294000; W1300000
 Descriptors: rock mechanics; British Columbia; mining geology; materials; properties; engineering geology; methods; argillite; slope stability; open-pit mining; Cassiar Mine; Sylvester Group; Canada; northern British Columbia; design; failures; peridotite; ultramafic family; clastic rocks; volcanic rocks; fractures; joints; style; strength; materials; properties; berms; wedges
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1080054 82-03701

Seismic zoning in Canada; some modifications to current maps
 Milne, W. G.; Weichert, D. H.; Basham, P. W.; Berry, M. J.
 Macquarie, W. S.
 Pac. Geosci. Cent., Sidney, BC, CAN

Proceedings of Conference XIII: Evaluation of regional seismic hazards and risk
 Hays, W. W. (EDITOR)
 Evaluation of regional seismic hazards and risk. Santa Fe, NM, United States, Aug. 25-27, 1980
 Open-File Report (United States Geological Survey, 1978)
 81-0437, 138-1420, 1981
 CODEN: XGROAG ISSN: 0196-1497 9 REFS.

Subfile B
 Country of Publ.: United States
 Doc. Type: SERIAL: REPORT: CONFERENCE PUBLICATION
 Bibliographic Level: ANALYTIC
 Languages: English
 Availability: U. S. Geol. Surv., Open-File Serv. Sect., West Distrib. Branch, Denver, CO, United States
 Note: Can. Earth Phys. Branch; Contrib. No. 885.
 Descriptors: *Canada; *seismology; *engineering geology; earthquakes; *geologic hazards; maps; seismic risk; USGS; seismicity; zoning; seismicity maps; probability; statistical analysis; cartography
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1080062 82-03634

New probabilistic hazards maps for the United States; a progress report
 Altermann, S. T.; Thierhaus, P. C.; Ashew, B.
 U. S. Geol. Surv., Denver, CO, USA

Proceedings of Conference XIII: Evaluation of regional seismic hazards and risk
 Hays, W. W. (EDITOR)
 Evaluation of regional seismic hazards and risk. Santa Fe, NM, United States, Aug. 25-27, 1980
 Open-File Report (United States Geological Survey, 1978)
 81-0437, 1370, 1981
 CODEN: XGROAG ISSN: 0196-1497

Subfile B
 Country of Publ.: United States
 Doc. Type: SERIAL: REPORT: CONFERENCE PUBLICATION
 Bibliographic Level: ANALYTIC
 Languages: English
 Availability: U. S. Geol. Surv., Open-File Serv. Sect., West Distrib. Branch, Denver, CO, United States
 Descriptors: *United States; *seismology; *engineering geology; earthquakes; maps; geologic hazards; seismic risk; USGS; probability; geotechnical maps; seismicity maps
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1080054 82-03701

Late Quaternary faulting as a guide to regional variations in long-term rates of seismic activity
 Bucknam, R. C.; Anderson, R. E.
 U. S. Geol. Surv., Denver, CO, USA

Proceedings of Conference XIII: Evaluation of regional seismic hazards and risk
 Hays, W. W. (EDITOR)
 Evaluation of regional seismic hazards and risk. Santa Fe, NM, United States, Aug. 25-27, 1980
 Open-File Report (United States Geological Survey, 1978)
 81-0437, 27-29p., 1981
 CODEN: XGROAG ISSN: 0196-1497

Subfile B
 Country of Publ.: United States
 Doc. Type: SERIAL: REPORT: CONFERENCE PUBLICATION
 Bibliographic Level: ANALYTIC
 Languages: English
 Availability: U. S. Geol. Surv., Open-File Serv. Sect., West Distrib. Branch, Denver, CO, United States
 Descriptors: *Basin and Range Province; *Great Basin; *seismology; *Western U.S.; *faults; *geomorphology; structural geology; earthquakes; engineering geology; displacements; landform evolution; neotectonics; geologic hazards; seismotectonics; active faults; fault scarps; USGS; seismic risk; United States; prediction; probability; rates; seismicity
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1079267 82-03913

Raschetnyye seysmogrammy sil'nykh zemletряseniy diya sooruzheniya s uchetom chastotnykh osobennostey ochagovykh zon rayona
Estimation of the seismic forces of earthquakes for construction taking into account the frequency characteristics of the focal zone in the region
Plotnikova, L. M.; Ter-Karapetova, K. S.; Rustanovich, D. N.

Seysmicheskiye vozdeystviya na gidrotekhnicheskiye i energeticheskiye sooruzheniya
Seismic effect on hydrotechnical and power plant construction
Savarenetskiy, Y. F.

Publ. Izd. Nauka
132-144p. 1980
21 REFS

Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc. Type: BOOK Bibliographic Level: ANALYTIC
Languages: Russian

Descriptors: *engineering geology; *earthquakes; feasibility studies; prediction; site exploration; methods; statistical analysis; focus
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1079267 82-03913

Statisticheskiye svoystva privodennykh uskoreniy sil'nykh zemletряseniy i prognoz seysmicheskikh usliy v slozhnykh sistemakh
The statistical behavior of corrected earthquake acceleration forces and the prediction of seismic stresses in complex systems
Lytkhin, V. M.; Frolova, N. I.

Seysmicheskiye vozdeystviya na gidrotekhnicheskiye i energeticheskiye sooruzheniya
Seismic effect on hydrotechnical and power plant construction
Savarenetskiy, Y. F.

Publ. Izd. Nauka
16-40p. 1980
37 REFS

Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc. Type: BOOK Bibliographic Level: ANALYTIC
Languages: Russian

Descriptors: *earthquakes; *engineering geology; effects; feasibility studies; acceleration; applications; prediction; statistical analysis; strong motion; spectral analysis; site exploration; ground motion
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1079265 82-03661

Statisticheskaya raschetnaya model' seysmicheskogo vozdeystviya na sooruzheniya
Statistical computational model of seismic effects on construction
Ayzenberg, Y. M.

Seysmicheskiye vozdeystviya na gidrotekhnicheskiye i energeticheskiye sooruzheniya
Seismic effect on hydrotechnical and power plant construction
Savarenetskiy, Y. F.

Publ. Izd. Nauka
5-11p. 1980
15 REFS

Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc. Type: BOOK Bibliographic Level: ANALYTIC
Languages: Russian

Descriptors: *earthquakes; *engineering geology; effects; feasibility studies; ground motion; applications; statistical analysis; mathematical models; models; site exploration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1078924 82-03916

On the Tangshan earthquake and the earthquake risk areas

Ma Jin; Zhang Botao; Yuan Shurong
State Seismol. Bur., Beijing, CHN
26th International geological congress. Paris, France, July 7-17, 1980

Int. Geol. Congr. Abstr.: Congr. Geol. Int. Resumes 26, Vol. 3, 1230p. 1980
CODEN: IGABBY

Subfile: B

Country of Publ.: Varies
Doc. Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *China; *seismology; earthquakes; engineering geology; geologic hazards; seismic risk; Asia; Tangshan; stress; mechanical properties; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1076916 82 03742

Etude statistique des resultats d'essais geotechniques realises en laboratoire sur l'argile des Flandres (Nord de la France)

Statistical study of results of geotechnical tests made in the laboratory on Flanders Clay, northern France
Degrée, D. ; Verreut, J. F.

Materials and engineering geology

Walters, R. (EDITOR)
26th international geological congress. Paris, France, July 7-17, 1980

Int. Assoc. Eng. Geol. Bull. 22, 253-255p., 1980
CODEN PIEGPG ISSN 0074-1612

Subfile B

Country of Publ.: International

Doc. Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: French Summary Languages: English

Descriptors: France; soil mechanics; soils; engineering geology; surveys; materials; properties; classification; clay; soils; Europe; Flanders Clay; experimental studies; tests; soil groups
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1077114 82 03590

Nonlinear soil-structure interaction analysis of one-, two-, and three-dimensional problems using finite element method

Srinivasan, H. J.
Virginia Polytech. Inst. and State Univ., Blacksburg, VA, USA

358p., 1980

Subfile P

Degree Level: Doctoral

Country of Publ.: United States

Doc. Type: Thesis Bibliographic Level: MONOGRAPHIC

Languages: English

Availability: Univ. Microfilms

Descriptors: soil mechanics; automatic data processing; foundations; deformation; engineering geology; theoretical studies; stress; finite element analysis; statistical methods; structure; one dimensional models; models; two dimensional models; three dimensional models; mathematical models; algorithms; earth pressure
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1076842 81 59410

Depth estimation for ordinary high water of streams in the Mobile District of the U.S. Army Corps of Engineers, Alabama and adjacent states

Harkins, J. R. ; Green, M. E.

U. S. Geol. Surv., USA

Open-File Report (United States Geological Survey, 1978)

81 0481, 15p., 1981

CODEN XGRDAG ISSN 0196-1497 3 REFS.

Subfile B

Country of Publ.: United States

Doc. Type: SERIAL; REPORT Bibliographic Level: MONOGRAPHIC

Languages: English

Availability: U. S. Geol. Surv., Open-File Serv. Sect., West Distrib. Branch, Denver, CO, United States

Sketch map

Descriptors: Alabama; Gulf Coastal Plain; hydrology; engineering geology; surveys; waterways; USGS; United States; North America; rivers and streams; streamflow; high water; floods; statistical analysis; Mobile District
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

1076293 81-59666

Statistical determination of design low flows

Prakash, A.

Bechtel, San Francisco, CA, USA

Water for survival

Beard, L. R. (EDITOR)

Int. Water Resour. Assn., Publ. Comm., Austin, TX, USA

International Water Resources Association, Third World Congress on water resources, Mexico City, Mexico, April 23-27, 1979

J. Hydrol. 51 1-4, 109-118p., 1981

CODEN JHYDA7 ISSN 0022-1694 6 REFS.

Subfile B

Country of Publ.: International

Doc. Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus., 4 tables

Descriptors: waterways; hydrology; rivers and streams; streamflow; statistical analysis; prediction; design; nuclear facilities; automatic data processing; engineering geology; hydraulics; probability; United States
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

AD-A136 355

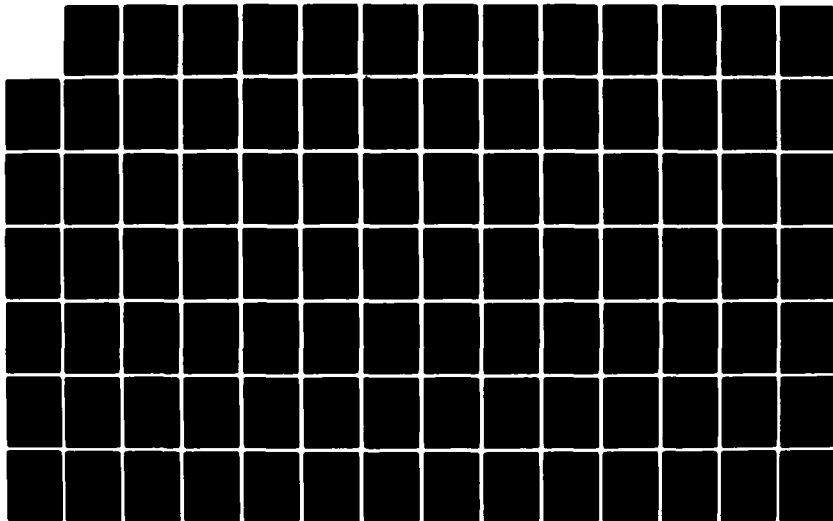
COMPENDIUM OF ABSTRACTS ON STATISTICAL APPLICATIONS IN
GEOTECHNICAL ENGIN..(U) ARMY ENGINEER WATERWAYS
EXPERIMENT STATION VICKSBURG MS GEOTE..
M E HYNES-GRIFFIN ET AL. SEP 83

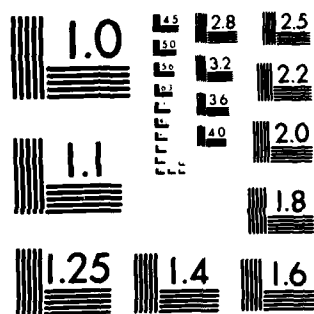
4/6

UNCLASSIFIED

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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

1016073 81-59956

Stato di tensione e di deformazione in un diaframma plastico
e nel terreno interessato da uno scavo profondo in presenza di
acqua
State of stress and deformation in a plastic diaphragm in
terrain disturbed by a deep excavation in the presence of
water

Gatti, G.; Cividin, A.
Geol. Tec. (Milan) 26: 4, 29-40p., 1979
CODEN: GETEX ISSN: 0435-3897 14 REFS.

Subfile: B
Country of Publ.: Italy
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

illus.: 1 table
Descriptors: Italy; engineering geology; foundations;
excavations; power plants; Tavazzano; finite element
analysis; statistical methods; stress; strain; Europe
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1075579 81-59819

Probabilistic and hazard analysis for pore pressure increase
in soils due to seismic loading

Chameau, J. A.
Stanford Univ., Stanford, CA, USA
244p., 1981

Subfile: B
Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESES Bibliographic Level: MONOGRAPHIC
Languages: English

Availability: Univ. Microfilms
Descriptors: geologic hazards; earthquakes; seismology;
soil mechanics; effects; experimental studies;
liquefaction; deformation; loading; pore pressure;
cohesionless materials; probability; theoretical studies;
seismic risk
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1014679 81-60045

Badanie reżimu energetycznego w wybranym rejonie kopalni
"Lubin" w latach 1973-1974
Energy release in selected regions of the "Lubin" copper
mine in 1973 and 1974
Kowalska, R.

Wybrane zagadnienia geofizycznych badań w kopalniach

Some geophysical problems in mines
Wernik, M. (EDITOR); Teisseyre, R. (EDITOR); Malkowski, J. (EDITOR); Sionka, J. (EDITOR); Jankowski, J. (EDITOR)
Wybrane zagadnienia geofizycznych badań w kopalniach.

Mogilany, Poland, Oct. 17-19, 1977
Pol. Acad. Sci., Inst. Geophys., Publ., Ser. M, Misc. 3,
177-182p., 1980
ISBN: 83-01-01927-1 1 REFS.

Subfile: B
Country of Publ.: Poland
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: Polish Summary Languages: English

illus.
Latitude: N490000; N544500 Longitude: E0241500; E0141500
Descriptors: Poland; mining geology; engineering geology
; technology; earthquakes; statistical analysis; Lubin
Mine; Europe; aftershocks; stress
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1074665 81-60096

Application of the Wang computer for the solution of some
problems of expansion tencsometry
Muzik, L.; Skorpova, J.

Wybrane zagadnienia geofizycznych badań w kopalniach

Some geophysical problems in mines
Wernik, M. (EDITOR); Teisseyre, R. (EDITOR); Malkowski, J. (EDITOR); Sionka, J. (EDITOR); Jankowski, J. (EDITOR)
Wybrane zagadnienia geofizycznych badań w kopalniach.

Mogilany, Poland, Oct. 17-19, 1977
Pol. Acad. Sci., Inst. Geophys., Publ., Ser. M, Misc. 3,
3-12p., 1980
ISBN: 83-01-01927-1

Subfile: B
Country of Publ.: Poland
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English Summary Languages: Polish

illus.
Descriptors: automatic data processing; mining geology;
rock mechanics; engineering geology; materials;
properties; methods; stress; tencsometry; statistical
analysis; materials; properties; strain
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1074580 81-57649

Finite element analysis of thermal convection in deep ocean sediments

Gartling, D. K.
U. S. Dep. Energy, Sandia Lab., Heat Transfer and Fluid Mech. Div., USA
Wang, S. Y. (EDITOR); Alonso, C. V. (EDITOR); Brebbia, C. A. (EDITOR); Gray, W. G. (EDITOR); Pinder, G. F. (EDITOR)
Third International Conference on finite elements in water resources, University, MS, United States, May 1980
Int. Conf. Finite Elem. Water Resour., Proc. 3, 7.30-7.44 p., 1980
17 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.

Descriptors: sediments; waste disposal; heat flow; ocean floors; properties; radioactive waste; distribution; anomalies; engineering properties; deep-sea environment; convection; thermal convection; crust; environmental analysis; finite element analysis; statistical methods; porous materials; basalt; basalt family; heat sources; MARIAN; automatic data processing; engineering geology
Section Headings: 07 (MARINE GEOLOGY AND OCEANOGRAPHY)

1074577 81-60050

A data management system for finite element sediment transport models

Lagarde, V. E.; Heltzel, S. R.
U. S. Army Corps Eng., Waterw. Exp. Stn., USA
Wang, S. Y. (EDITOR); Alonso, C. V. (EDITOR); Brebbia, C. A. (EDITOR); Gray, W. G. (EDITOR); Pinder, G. F. (EDITOR)
Third International Conference on finite elements in water resources, University, MS, United States, May 1980
Int. Conf. Finite Elem. Water Resour., Proc. 3, 6.35-6.46 p., 1980

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table, sketch maps
Descriptors: "waterways; "automatic data processing; hydrology; hydraulics; rivers and streams; engineering geology; sediment yield; transport; data handling; finite element analysis; statistical methods; Washington; United States; Louisiana; Columbia River; Atchafalaya Bay; sediments; grain size; graphic display; algorithms
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1074575 81-59615

Two-dimensional finite element analysis of the hydraulic effect of highway bridge fills in a complex flood plain

Lee, J. K.
U. S. Geol. Surv., USA
Wang, S. Y. (EDITOR); Alonso, C. V. (EDITOR); Brebbia, C. A. (EDITOR); Gray, W. G. (EDITOR); Pinder, G. F. (EDITOR)
Third International Conference on finite elements in water resources, University, MS, United States, May 1980
Int. Conf. Finite Elem. Water Resour., Proc. 3, 6.3-6.23 p., 1980
9 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: 1 table, sketch maps

Latitude: N34500; N340500 Longitude: W081000; W0811500
Descriptors: "South Carolina; hydrology; engineering geology; surveys; foundations; Lexington County; United States; bridges; hydraulics; finite element analysis; statistical methods; Congaree River; rivers and streams; two-dimensional models; models; channel geometry; roughness; floods; dikes; intrusions
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

1074341 81-59995

**Mathematisch-statistische Zusammenhaenge zwischen gesteinsmechanischen und gesteinsphysikalischen Kennwerten
Mathematical-statistical relations between rock mechanic and petrophysical parameters**

Heyne, K. H.
Z. Angew. Geol. 26: 10, 519-523p., 1980
CODEN: ZANGAK ISSN: 0044-2259 5 REFS.
Subfile: B
Country of Publ.: German Democratic Republic
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: German Summary Languages: Russian
illus.

Descriptors: rock mechanics; materials; properties; statistical analysis; materials; properties; factor analysis; statistical methods; regression; anhydrite; sulfates; heat flow; density; tensile strength; compressive strength
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

analysis; prediction; methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1074012 81-59889
Automaticke zpracovani casove posloupnosti seismokustickych impulsu
Automatic processing of the time sequence of seismoacoustic impulses
Broz, M.; Fucik, P.

Wybrane zagadnienia geofizycznych badan w kopalniach
Some geophysical problems in mines
Telsseyre, R. (EDITOR)
Wybrane zagadnienia geofizycznych badan w kopalniach, Krosienko, Poland, Oct. 21-24, 1974
Pol. Acad. Sci., Inst. Geophys., Publ., Ser. M, Misc. M-1 (197), 179-189p., 1976
5 REFS.

Subfile: B
Country of Publ.: Poland
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: Polish Summary Languages: English
illus.: charts
Descriptors: rock mechanics; automatic data processing; geophysical methods; methods; geophysical surveys; acoustical methods; seismoacoustic methods; applications; mathematical models; models; computer programs; Czechoslovakia; Europe; Brezove hory Mountains; Pribram; Bohemia; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1074000 81-60153
Predicke kladenskych dulinich otesu pomoci dvoukanalove wienerovske prediktivni filtrace
Prediction of rock bursts in Kladno Colliery by means of the two-channel Wiener predictive filtration
Rudajev, V.; Pec, K.; Bubon, J.

Wybrane zagadnienia geofizycznych badan w kopalniach
Some geophysical problems in mines
Telsseyre, R. (EDITOR)
Wybrane zagadnienia geofizycznych badan w kopalniach, Krosienko, Poland, Oct. 21-24, 1974
Pol. Acad. Sci., Inst. Geophys., Publ., Ser. M, Misc. M-1 (197), 15-27p., 1976
5 REFS.

Subfile: B
Country of Publ.: Poland
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: Polish Summary Languages: English
illus.: tables, charts
Latitude: N500500; N501500 Longitude: E0141000; E0140000
Descriptors: Czechoslovakia; automatic data processing; engineering geology; geologic hazards; Europe; coal; organic residues; mines; Kladno; rock bursts; statistical

1072161 81-60085
Statistical uncertainties in seismic hazard evaluations in the United States
McGuire, R. K.; Shedlock, K. M.
U. S. Geol. Surv., Denver, CO, USA
Bulletin of the Seismological Society of America 71: 4, 1285-1309p., 1981
CODEN: BSSAAP ISSN: 0037-1106 23 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: 3 tables
Descriptors: United States; seismology; engineering geology; earthquakes; geologic hazards; seismic risk; statistical analysis; mathematical models; probability; automatic data processing; ground motion
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1070864 81-54426

**Kontsentratsionnyy kriteriy ob'yemogo razrusheniya
verkhnykh tel**
Concentrated criteria for the destruction of solid bodies
Zhurkov, S. N.; Kuksenko, V. S.; Petrov, V. A.; Savel'yev,
V. N.; Sultanov, U. S.

Fizicheskiye protsessy v ochagakh zemletreseniy
Physical processes in earthquake foci
Sadovskiy, M. A. (EDITOR); Myachkin, V. I. (EDITOR)
Vsesoyuznaya nauchnaya sessiya: Fizicheskiye protsessy v
ochagakh zemletreseniy. Moscow, Union of Soviet Socialist
Republics, May 10-19, 1977
Publ: Izd. Nauka
78-86p., 1980
8 REFS.

Country of Publ.: Union of Soviet Socialist Republics
Doc Type: BOOK: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: Russian
Descriptors: earthquakes; rock mechanics; seismology;
effects; materials; properties; crust; strain;
statistical analysis; velocity; materials, properties;
focal mechanism
Section Headings: 19 (GEOPHYSICS, SEISMOLOGY)

1070455 81-55930

Soil mass and volume relationship for a Vertisol
Gupta, U. S.; Gupta, R. K.
Indian Soc. Soil Sci., J. 28: 4, 507-509p., 1980
CODEN: JINSA4 ISSN: 0019-638X 5 REFS.

Country of Publ.: India
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., 4 anal., 2 tables
Descriptors: India; soils; soil mechanics; materials;
properties; surveys; Vertisols; volume; Asia; expansion;
physical properties; mass; desiccation;
properties; statistical analysis
Section Headings: 25 (SURFICIAL GEOLOGY, SOILS)

1070388 81-55499

**Identification of naturally fractured reservoirs by optimal
control methods**
Winter, A.
Geol. Surv. Dev., Copenhagen, DNK
26th International geological congress. Paris, France,
July 7-17, 1980

Int. Geol. Congr., Abstr., Congr. Geol. Int., Resumes 26,
Vol. 2, 89p., 1980
CODEN: IGABRY

Country of Publ.: Varies
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Descriptors: engineering geology; automatic data
processing; petroleum engineering; reservoir properties;
reservoir rocks; fractures; mathematical models; models;
porosity; permeability; statistical analysis; optimization
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1070309 81-55267

**Radioactive waste disposal into Boom Clay Formation;
probabilistic assessment of the geological containment**
D'Alessandro, M.; Bonne, A.
JRC, Ispra, ITA: CEN/SCK, BEL
26th International geological congress. Paris, France,
July 7-17, 1980
Int. Geol. Congr., Abstr., Congr. Geol. Int., Resumes 26,
Vol. 2, 85p., 1980
CODEN: IGABRY

Country of Publ.: Varies
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Latitude: N511000 Longitude: E0051000; E0050500
Descriptors: Belgium; engineering geology; waste
disposal; Europe; Boom Clay Formation; Boom's Clay; Mol;
radioactive waste; storage; failures; probability;
geologic hazards; automatic data processing; ground water;
faults
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1070175 81-55433

Vil'yaniye sostava i granulometrii kollektorov na ikh poristost' i pronitsyvaemost'
The influence of the composition and granulometry of reservoir rocks on their porosity and permeability
Pritulko, G. I.; Petkevich, G. I.; Pilyanskaya, N. O.
Geol. Geokhim. Goryuch. Iskorp. (Akad. Nauk Ukr. SSR) 55, 40-43p., 1980
CODEN: GGGIAS ISSN: 0135-2164 3 REFS.
Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Russian
3 tables
Descriptors: *engineering geology; *sedimentary rocks; petroleum engineering; textures; reservoir rocks; granulometry; properties; porosity; permeability; statistical analysis; composition
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1069645 81-55095

Extended figures and tables for the inter-comparison of faults, roof failure and mining rate in a New South Wales colliery
Shepherd, J.; Fisher, N. I.
Investigation Report - CSIRO Institute of Earth Resources 125, 16p., 1978
CODEN: ICIIRD ISSN: 0156-9953 6 REFS.
Subfile: B
Country of Publ.: Australia
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
Languages: English
illus., tables, sketch map
Latitude: 33°30'00" Longitude: 153°30'00" E1410000
Descriptors: *New South Wales; *mining geology; *economic geology; technology; engineering geology; coal; roof control; underground installations; Australia; organic residues; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1069457 81-54350

Three-dimensional finite element analysis of relationship between stress state of a rock mass and driving force
Liu Jianyong; Gao Weilai; Wang Qiming
Seismology and Geology 2: 1, 3-10p., 1980
Subfile: B
Country of Publ.: China
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Chinese Summary Languages: English
illus., 1 table, block diag.
Descriptors: *seismology; *rock mechanics; theoretical

1069456 81-55504

Statistical analysis of factors causing liquefaction of sand during the Tangshan Earthquake
Zhu Shulian
Seismology and Geology 2: 2, 79-80p., 1980
Subfile: B
Country of Publ.: China
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., 1 table
Latitude: 39°00'00" Longitude: 118°00'00" E1240000
Descriptors: *China; *soil mechanics; engineering geology; materials; properties; earthquakes; liquefaction; Asia; statistical analysis; materials; properties; Tangshan earthquake
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1068286 81-55442

Analysis of slope stability at Gonyella Mine
Richards, B. G.; Coulthard, M. A.; Toh, C. T.
CSIRO, Div. Appl. Mech., Mount Waverley, AUS
Canadian Geotechnical Journal--Revue Canadienne de Geotechnique 18: 2, 179-194p., 1981
CODEN: CGJNAH ISSN: 0008-3674 15 REFS.
Subfile: B
Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus., 1 table, sects.
Latitude: 52°10'00" Longitude: 118°00'00" E1480000
Descriptors: *Australia; *mining geology; *soil mechanics; engineering geology; production control; case studies; slope stability; strip mining; Gonyella Mine; Queensland; coal; organic residues; permian; Paleozoic; sandstone; clastic rocks; siltstone; claystone; aquifers; ground water; levels; mine dumps; shear strength; blasting; finite element analysis; statistical methods; displacements; moisture
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

106R038 81-55321

Statistical study of uniform cycles in earthquakes

Haider, A.; Tang, W. H. M. *Dep. Civ. Eng., Atlanta, GA, USA: Univ. Ga. Inst. Technol., 1981. 4 tables*
 111. Dep. Civ. Eng., USA
 Journal of the Geotechnical Engineering Division 107: G15, 577-589p., 1981
 CODEN: AJGE86 ISSN: 0093-6405 33 REFS.
 Subfile: B

Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English

111us., 2 tables

Descriptors: soil mechanics; earthquakes; experimental studies; effects; stress; soils; in situ; Alaska; United States; Anchorage earthquake; Japan; Asia; Niigata earthquake
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

106794R 81-56773

Actual percentage recovery at the Raccoon coal mine, Kanawha County, West Virginia

McClelland, S. W.
 W. Va. Geol. Econ. Surv., Morgantown, WV, USA

Proceedings of the West Virginia Academy of Science 1981

Kurthitt, M. W. (EDITOR); Keller, E. C., Jr. (EDITOR)
 Fifty-sixth annual session of the West Virginia Academy of Sciences, Morgantown, WV, United States.
 Proceedings of the West Virginia Academy of Science 53: 1, 17p., 1981
 CODEN: PWVA81 ISSN: 0096-4263
 Subfile: B

Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English

Latitude: N380000 Longitude: W0810000; W0810000

Descriptors: West Virginia; economic geology; engineering geology; coal; mining geology; Kanawha County; United States; organic residues; practice; recovery; Raccoon Mine; statistical data; percent recovery; Appalachian Plateau
 Section Headings: 29 (ECONOMIC GEOLOGY, ENERGY SOURCES)

1067763 81-55327

Statistical analysis of marine clay deposits

Hin Fatt Cheong; Subrahanyam, R. V.
 Journal of the Geotechnical Engineering Division 107: G12, 221-228p., 1981
 CODEN: AJGE86 ISSN: 0093-6405 4 REFS.
 Subfile: B

Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 Chart, 4 tables
 Descriptors: Singapore; soils; soil mechanics; site exploration; surveys; analysis; clay; marine environment; clastic sediments; marine sediments; Asia; equations
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1067748 81-55474

Probabilistic evaluation of loads

Tang, W. H.
 Univ. Ill., Dep. Civ. Eng., Urbana, IL, USA
 Journal of the Geotechnical Engineering Division 107: G73, 287-304p., 1981
 CODEN: AJGE86 ISSN: 0093-6405 36 REFS.
 Subfile: B

Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English

111us., 1 table

Descriptors: soil mechanics; earthquakes; theoretical studies; effects; loading; load casts; turbidity current structures; sedimentary structures; probability; wind transport; slope stability; seismic risk; liquefaction; pore pressure; seepage; histograms; Richter scale
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1067383 81-55468

Spatial variability of flow parameters in a stratified sand
Smith, L.
Univ. Utah, Dep. Geol. and Geophys., Salt Lake City, UT, USA
Journal of the International Association for Mathematical
Geology 13: 1, 1-21p., 1981
CODEN: JMGJBS ISSN: 0020-5958 17 REFS.

Subfile: 8
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

illus.: 3 tables, sketch map
Latitude: N490500; N491000 Longitude: W1231000; W1231000
Descriptors: *British Columbia; *soil mechanics;
*mathematical geology; *engineering geology; materials;
properties; methods; *mathematical models; Canada;
sediments; clastic sediments; sand; porosity; grain size;
materials, properties; hydraulic conductivity; compressibi-
lity; Quaternary sand; distribution; statistical analysis;
models; power-spectrum analysis; Vancouver; stochastic
processes

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1066534 81-50084

Probability of earthquake occurrence in the vicinity of the
Chena flood control dam near Fairbanks, Alaska

Davis, T. N.; Estes, S. A.; Gedney, L. R.
UACR (Geophysical Institute, University of Alaska) R-262
Seismological Report No. 7, 18p., 1978
CODEN: AUGGAK ISSN: 0271-4892 9 REFS.

Subfile: 8
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

languages: English
Note: Final report, illus.: 7 tables, sketch maps
Latitude: N644500; N650000 Longitude: W1470000; W1474500
Descriptors: *Alaska; *seismology; *engineering geology;
earthquakes; prediction; United States; Fairbanks;
occurrence; magnitude; tectonics
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1066016 81-52075

Statistical analysis of density and porosity of subsurface
rock samples from Cauvery Basin

Kolthara, J.; Bisht, J. S.; Raj, H.
Workshop on coastal sedimentaries of India, Madras, India,
March 28-30, 1976
Publ: Oil and Nat. Gas Comm.
2/p., 1976

Subfile: 8
Country of Publ.: India
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English

IGCP Project No. 032,
Latitude: N090000; N120000 Longitude: E0800000; E0780000
Descriptors: *India; *rock mechanics; *economic geology;
materials; properties; petroleum; reservoir rocks; Asia;
basins; sedimentary basins; coastal environment; Cauvery
Basin; Tamil Nadu; statistical analysis; density; porosity
; reservoir properties; exploration; materials, properties
; Section Headings: 29 (ECONOMIC GEOLOGY, ENERGY SOURCES)

1065769 81-50288

Primeneniye metoda konechnykh elementov pri seysmalicheskom
mikroyanivirovani
Applying finite element methods during seismic microzoning
Gogeliya, T. I.; Napetvaridze, S. G.

Seysmalicheskoye mikroyanivirovaniye
Seismic microzoning

Medvedev, S. V. (EDITOR)
Publ: Izd. Nauka
161-164p., 1977

Subfile: 8

Country of Publ.: Union of Soviet Socialist Republics
Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: Russian

illus.
Descriptors: *automatic data processing; *earthquakes;
*engineering geology; effects; seismic risk; finite element
analysis; statistical methods; mathematical methods; zoning
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

USSR Acad. Sci., D. Yu. Shmidt Inst. Earth Phys., SUN
 Physics of the Solid Earth 15: 5, 364-369p., 1979
 CODEN: IPSEB0 ISSN: 0001-4354 26 REFS.
 Subfile: 8
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.: 2 tables
 Descriptors: *seismology; *metamorphic rocks; *igneous rocks
 ; *rock mechanics; *geophysics; *mantle; *crust; *elastic
 waves; properties; materials; experimental studies;
 p-waves; elastic properties; velocity; statistical analysis
 ; crystalline rocks; p-t conditions; high pressure; upper
 mantle; elasticity; materials; properties
 Section Headings: 17 (GEOPHYSICS, GENERAL)

1065767 81-50396
 USSR Acad. Sci., D. Yu. Shmidt Inst. Earth Phys., SUN
 Physics of the Solid Earth 15: 5, 364-369p., 1979
 CODEN: IPSEB0 ISSN: 0001-4354 26 REFS.
 Subfile: 8
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
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 Descriptors: *seismology; *metamorphic rocks; *igneous rocks
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 p-waves; elastic properties; velocity; statistical analysis
 ; crystalline rocks; p-t conditions; high pressure; upper
 mantle; elasticity; materials; properties
 Section Headings: 17 (GEOPHYSICS, GENERAL)

1063629 81-50129
 Probabilistic estimates of maximum seismic horizontal ground
 motion on rock in coastal California and the adjacent outer
 continental shelf
 S. 1.
 Theinhaus, P. C.; Perkins, D. M.; Ziony, J. L.; Algermissen,
 T.
 Open-File Report (United States Geological Survey. 1978)
 80-0924. GPO., 1980
 CODEN: XGRDAG ISSN: 0196-1497 55 REFS.
 Subfile: 8
 Country of Publ.: United States
 Doc Type: SERIAL REPORT; MAP Bibliographic Level:
 MINOGRAPHIC
 Languages: English
 Availability: U. S. Geol. Surv., Open-File Serv. Sect.,
 West. Distrib. Branch, Denver, CO, United States
 illus.: maps
 Latitude: N307000 Longitude: W1140000; W1260000
 Descriptors: *California; *seismology; *Pacific Ocean
 earthquakes; engineering geology; oceanography; *geologic
 hazards; continental shelf; ground motion; USGS; United
 States; North American Pacific; prediction; probability;
 outer shelf
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1063211 81-49090
 Statistical characteristics of elastic wave velocities in
 crystalline rocks under high pressures
 Volynskii, I. N.; Volynovich, M. I.; Bayuk, K. I.
 USSR Acad. Sci., D. Yu. Shmidt Inst. Earth Phys., SUN
 Physics of the Solid Earth 15: 5, 364-369p., 1979
 CODEN: IPSEB0 ISSN: 0001-4354 26 REFS.
 Subfile: 8
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
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 Descriptors: *seismology; *metamorphic rocks; *igneous rocks
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1063211 81-49090
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 CODEN: IPSEB0 ISSN: 0001-4354 26 REFS.
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 CODEN: IPSEB0 ISSN: 0001-4354 26 REFS.
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 Physics of the Solid Earth 15: 5, 364-369p., 1979
 CODEN: IPSEB0 ISSN: 0001-4354 26 REFS.
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 Country of Publ.: United States
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1063211 81-49090
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 Physics of the Solid Earth 15: 5, 364-369p., 1979
 CODEN: IPSEB0 ISSN: 0001-4354 26 REFS.
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 CODEN: IPSEB0 ISSN: 0001-4354 26 REFS.
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1063211 81-49090
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 Volynskii, I. N.; Volynovich, M. I.; Bayuk, K. I.
 USSR Acad. Sci., D. Yu. Shmidt Inst. Earth Phys., SUN
 Physics of the Solid Earth 15: 5, 364-369p., 1979
 CODEN: IPSEB0 ISSN: 0001-4354 26 REFS.
 Subfile: 8
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.: 2 tables
 Descriptors: *seismology; *metamorphic rocks; *igneous rocks
 ; *rock mechanics; *geophysics; *mantle; *crust; *elastic
 waves; properties; materials; experimental studies;
 p-waves; elastic properties; velocity; statistical analysis
 ; crystalline rocks; p-t conditions; high pressure; upper
 mantle; elasticity; materials; properties
 Section Headings: 17 (GEOPHYSICS, GENERAL)

1062747 81-49092

Systematics of crack controlled mechanical properties for a suite of Conway granites from the White Mountains, New Hampshire

Warren, N.; Tiernan, M.
Univ. Calif., Inst. Geophys. and Planet. Phys., Los Angeles, CA, USA
Tectonophysics 73: 4, 295-322p., 1981
CODEN: TCTOAM ISSN: 0040-1951 13 REFS.
Subfile: B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Note: Univ. Calif., Inst. Geophys. and Planet. Phys.
Contrib. No. 2000. illus., tables
Latitude: N435000; N441000 Longitude: W0710500; W0711500
Descriptors: New Hampshire; deformation; fractures; rock mechanics; igneous rocks; structural geology; experimental studies; materials; properties; granites; mechanical properties; cracks; Carroll County; Conway Formation; Quebec Formation; White Mountain Plutonic Series; United States; White Mountains; Conway; cores; dikes; intrusions; metamorphites; ultramylonites; physical properties; microfractures; materials; properties; strain; acoustical properties; pressure; textures; cluster analysis; statistical methods
Section Headings: 17 (GEOPHYSICS, GENERAL)

1062447 81-51075

Ontario mining statistics: a preliminary compendium

Pye, C. H. (COMPILER); Hinton, M. N. A. (COMPILER); McMurray, C. E. (COMPILER)
Min. Resour. Branch, Ont. Minist. of Nat. Resour., Toronto, ON, CAN
Mineral Policy Background Paper 11, variously paginated p., 1979
ISSN: 0705-103X
Subfile: B

Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
Languages: English
Tables
Latitude: N420000; N570000 Longitude: W0740000; W0950000
Descriptors: Ontario; economic geology; environmental geology; engineering geology; mineral resources; pollution; waste disposal; Canada; data; mining geology; metal ores; production; history; legislation; practice; impact statement
Section Headings: 26 (ECONOMIC GEOLOGY, GENERAL & MINING)

1062335 81-50426

Seismic vulnerability of a water distribution system; a case study

Pikul, R. R.; Wang, L. R.; O'Rourke, M. J.
Clough Assoc., Albany, NY, USA; Renaissance Polytech. Inst., USA
Third Canadian conference on earthquake engineering. Montreal, PQ, Canada, June 4-6, 1979
Proceedings - Canadian Conference [on] Earthquake Engineering-Compte Rendus - Conference Canadienne [du] Genie Sismique 3, 1365-1380p., 1979
8 REFS.
Subfile: B

Country of Publ.: Canada
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus., tables, geol. sketch maps
Latitude: N424000; N424000 Longitude: W0734000; W0734000
Descriptors: New York; soil mechanics; engineering geology; seismology; case studies; earthquakes; seismicity; seismic response; Albany County; United States; field studies; effects; seismic effects; Latham water district; probability; pipelines; seismic risk; unconsolidated materials; buried valleys; shear; contour maps; maps
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1062330 81-50216

Criteria d'analyse sismique des grands barrages
Seismic analysis criteria for large dams

Bureau, G. J.
Int. Eng. Co., San Francisco, CA, USA
Third Canadian conference on earthquake engineering. Montreal, PQ, Canada, June 4-6, 1979
Proceedings - Canadian Conference [on] Earthquake Engineering-Compte Rendus - Conference Canadienne [du] Genie Sismique 3, 147-176p., 1979
49 REFS.
Subfile: B

Country of Publ.: Canada
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: French Summary Languages: English
illus., tables
Latitude: N360000; N360000 Longitude: W1180000; W1180000
Descriptors: dams; foundations; earthquakes; design; effects; seismic risk; California; United States; Owens Valley Fault; nuclear facilities; engineering geology; finite element analysis; statistical methods; Sierra Nevada
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1062197 81-50406

Analisis de losas de fundacion a traves del metodo de elementos finitos

Mat foundation analysis by finite element method

Obilnovic, H.; Ortigosa, P.

Sexto congreso Panamericano de mecanica del suelos e Ingenieria de cimentaciones, Lima, Peru, December 2-7, 1979

Congreso Panamericano de Mecanica de Suelos e Ingenieria de Fundaciones-Panamerican Conference on Soil Mechanics and Foundation Engineering 6, Vol. III, 275-282p., 1979

14 REFS.

Subfile: B

Country of Publ.: Argentina

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: Spanish Summary Languages: English

illus.

Descriptors: *soil mechanics; *foundations; theoretical

studies; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1062182 81-50461

Analysis of vibratory behavior of machine foundations and finite element analysis for vibrations of surrounding ground

Sams, C. E.; Browning, W. V.

Law Eng. Test., Charlotte, NC, USA

Sexto congreso Panamericano de mecanica del suelos e Ingenieria de cimentaciones, Lima, Peru, December 2-7, 1979

Congreso Panamericano de Mecanica de Suelos e Ingenieria de Fundaciones-Panamerican Conference on Soil Mechanics and Foundation Engineering 6, Vol. III, 81-92p., 1979

7 REFS.

Subfile: B

Country of Publ.: Argentina

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English Summary Languages: Spanish

illus.

Descriptors: *foundations; *soil mechanics; experimental

studies; vibration; shear modulus; finite element analysis

; statistical methods; elastic constants

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1061853 81-50272

Reactions between aggregates and cement paste: an interpretation of the pessimum

French, W. J.

Applied petrology: the stability of concrete aggregates

Robertson, A. D. (chairperson)

Ordinary general meeting of the Geological Society: Applied Petrology: the stability of concrete aggregates. London, United Kingdom, Feb. 1979

Q. J. Eng. Geol. 13: 4, 231-247p., 1980

CODEN: QJEGA7 ISSN: 0481-2085 42 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.: 1 anal., 1 table

Descriptors: *engineering geology; *construction materials

; materials; properties; concrete; cement materials;

materials; properties; aggregate; chemical composition;

reactions; statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1059544 81-44898

Discrimination of landslide slopes and estimation of hazard based on morphological analysis

Yoshimatsu, H.; Shimizu, K.; Sakamoto, Y.

Landslide - Journal of the Japan Society of Landslide 15:

4-3(56), 12-19p., 1979

7 REFS.

Subfile: B

Country of Publ.: Japan

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Japanese Summary Languages: English

illus.: 4 tables

Descriptors: *geologic hazards; *slope stability;

landslides; possibilities; classification; engineering

geology; methods; statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

languages: German
 illus., tables, sects., geol. sketch maps
 Latitude: N410000; N420000 Longitude: E0240000; E0240000
 Descriptors: Greece; hydrology; structural analysis; dams;
 engineering geology; surveys; fractures; waterways; tectonics;
 Nestos River; joints; Europe; northern Greece; rock
 mechanics; lithostratigraphy; Potamoi Granite; rock
 pegmatite; granite-granodiorite family; amphibolites
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1058386 81-44508

Parametric study involving thermo/viscoelastic analyses of a room and pillar configuration

Wagner, R. A.
 RE/SPEC, Rapid City, SD, USA
 Rpt., 1980
 11 REFS.

Subfile: B
 Doc Type: REPORT Bibliographic Level: MONOGRAPHIC

Languages: English
 Report No.: GWT-115
 Availability: NTIS, Springfield, VA, United States
 illus., 4 tables, sketch maps
 Descriptors: waste disposal; rock mechanics; radioactive
 waste; materials; properties; design; viscoelasticity;
 repositories; pillars; temperature; room-and-pillar design;
 finite element analysis; statistical methods; failure;
 stress; plasticity; materials; properties
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

A probabilistic consolidation analysis for embankment foundations

Huang, D.
 Univ. of Maryland, College Park, MD, USA
 379p., 1980
 Subfile: B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESES Bibliographic Level: MONOGRAPHIC

Languages: English
 Availability: Univ. Microfilms
 Descriptors: foundations; embankments;
 studies; earthworks; soil mechanics; consolidation; physical
 models; mathematical models;
 properties; engineering properties
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1059690 81-44676

Stresses and displacements in a layered subsoil finite element analysis: Part 2. Finite element assembly for a layered subsoil

Gryczanski, M.
 Stud. Geotech. 5: 2. 15-31p., 1974
 ISSN: 0137-124X 20 REFS.

Subfile: B

Country of Publ.: Poland

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

illus., 2 tables, sect., block diag.

Descriptors: soil mechanics; theoretical studies;
 layered materials; layered media; subsoil; stress;
 displacements; finite element analysis; statistical methods;
 geometry; elastoplastic materials; creep; mathematical
 models; equations
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1059150 81-44559

**Ingenieurgeologische Probleme beim geplanten Wasserverschachtlichen Ausbau des Nestos-Flusses in N-Griechenland
 Engineering geology problems with the planned development of the Nestos River in northern Greece**

Pantartzis, P.
 Rheinisch-Westfäl. Tech. Hochschule, Aachen, Fak. Bergbau
 208p., 1977
 71 REFS.

Subfile: B

Degree Level: Doctoral

Country of Publ.: Germany, Federal Republic of

Doc Type: THESES Bibliographic Level: MONOGRAPHIC

105774 81-44817

Remarks on the validity of stability analyses; discussion and reply

Robert, J. M.; Tavenas, F.; Trak, B.; Leroueil, S.
Que. Minist. Energy Resour., Geotech. Serv., Quebec, PQ, CAN
Canadian Geotechnical Journal--Revue Canadienne de
Geotechnique 18: 1, 146-151p., 1981
CODEN: CGUOAH ISSN: 0008-3674 21 REFS.
Subfile: B

Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: French

Note: For original paper by Tavenas, F., Trak, B., and
Leroueil, S., see Can. Geotech. J., Vol. 17, pgs. 61-73, 1980;
discussion in French, reply in English, illus.
Descriptors: *soil mechanics; *Quebec ; methods;
engineering geology ; stability; Champlain Clays; models;
rupture; erosion; finite element analysis; statistical
methods; slope stability; Canada
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

105774 81-44822

A comparative seismic hazard study for Azerbaijan Province in Iran

Rovshandi, B.; Nemat-Nasser, S.; Corotis, R. B.
Northwest. Univ., Dep. Civ. Eng., Evanston, IL, USA
Bulletin of the Seismological Society of America 71: 1,
335-362p., 1981
CODEN: BSSAAP ISSN: 0037-1106 30 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Latitude: N320000; N400000 Longitude: E0500000; E0420000
Descriptors: *Iran; *seismology ; engineering geology;
earthquakes ; geologic hazards; ground motion; Asia;
Azerbaijan; seismic risk; seismic sources; epicenters;
seismicity; intraplate tectonics; seismotectonics;
statistical analysis; probability
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1057740 81-44758

Effects of temporal variations in seismicity on seismic hazard

McGuire, R.; Barnhard, T. P.
U. S. Geol. Surv., Off. Earthquake Stud., Denver, CO, USA
Bulletin of the Seismological Society of America 71: 1,
321-334p., 1981
CODEN: BSSAAP ISSN: 0037-1106 11 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., sketch maps
Latitude: N200000; N500000 Longitude: E1350000; E0740000
Descriptors: *China; *seismology ; *Eastern U.S. ;
earthquakes; engineering geology ; geologic hazards; ground
motion; Asia; seismicity; history; time variations;
probability; statistical analysis; United States;
prediction; Mississippi Valley
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1057730 81-44708

Transmitting boundaries; a closed-form comparison

Kausel, E.; Tassoulas, J. L.
Mass. Inst. Technol., Dep. Civ. Eng., Cambridge, MA, USA
Bulletin of the Seismological Society of America 71: 1,
143-159p., 1981
CODEN: BSSAAP ISSN: 0037-1106 16 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., table

Descriptors: *soil mechanics; *seismology ; elasticity;
elastic waves ; theoretical studies; propagation;
mathematical models; models; elastic properties; finite
difference analysis; finite element analysis; statistical
methods; S-waves; foundations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1056572 81-44649

Dynamic axisymmetric soil model for a flexible ring footing

El-Shafie, O. M.; Gould, P. L.
Wash. Univ., Dep. Civ. Eng., St. Louis, MO, USA
Earthquake Eng. Struct. Dyn. 8: 5, 479-498p., 1980
CODEN: JUEEBG ISSN: 0098-8847
Subfile: B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *foundations; *soil mechanics ; seismic
response; theoretical studies ; loading; ring footings;
finite element analysis; statistical methods; mathematical
models; models; axisymmetric models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1055147 81-44545

Cross-plots and histograms for well log analysis in unfamiliar lithologies

Juepasche, J. M. Stanford, CA, USA

Stanford Univ., 1978

Unknown.

Subfile: B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Descriptors: *well-logging; *engineering geology ;

interpretation; petroleum engineering ; graphic methods;

statistical methods; histograms; lithology

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1054136 81-38382

A comparison of estimates of seismic risk in the central United States

Howell, B. F., Jr.

Pa. State Univ., Dep. Geosci., University Park, PA, USA

Earthquake Notes 51: 2, 13-19p., 1980

CODEN: EQMAT ISSN: 0012-8287 13 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

2 tables

Descriptors: *Midwest; *seismology ; engineering geology;

seismicity ; earthquakes; seismic risk; United States;

environmental geology; maximum likelihood method;

least-squares analysis; statistical methods; magnitude;

Mississippi Valley; theoretical studies; Gumbel

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1053824 81-38265

Geotechnical data bank for Indiana

Lo. Y. T.

Purdue Univ., West Lafayette, IN, USA

574p., 1980

Subfile: B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Availability: Univ. Microfilms

Latitude: N374500; N414500 Longitude: W0844500; W0881000

Descriptors: *Indiana; *engineering geology; *automatic data

processing ; practice ; civil engineering; United States;

data bases; statistical methods; soils; engineering

properties; topography

1053823 81-38260

Reliability of geotechnical systems

Harrop-Williams, K. O.

Rensselaer Polytech. Inst., Troy, NY, USA

281p., 1980

Subfile: B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Availability: Univ. Microfilms

Descriptors: *foundations; *slope stability; *soil mechanics

; earthworks; failure; theoretical studies ; prediction;

probability; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1053162 81-37974

Effektivnost' gelyemetrii pri reshenii gidrogeologicheskikh i inzhenerno-geologicheskikh zadach

Efficiency of helium measurement in solving hydrogeological and engineering-geological problems

Grafskiy, B. V.; Vegerov, N. N.; Shezhkina, V. Y.

Sov. Geol., 11, 115-121p., 1980

CODEN: SVGLA2 ISSN: 0038-5069 6 REFS.

Subfile: B

Country of Publ.: Union of Soviet Socialist Republics

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Russian

tables, sketch map

Descriptors: *helium; *hydrogeology; *rock mechanics ;

geochemistry; applications; theoretical studies ; ground

water; hydraulic fracturing; engineering geology;

statistical analysis; permeability

Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

1052390 81-38416

Shoreline erosion control program at the Northeast Beach Point Pelee, Ontario, Canada

Lavallee, P. D.
Univ. Windsor, Dep. Geogr., Windsor, ON, CAN

Resource allocation issues in the coastal environment

West, N. (EDITOR)
Univ. R.I., Dep. Geogr. Mar. Aff., Kingston, RI, USA
Resource allocation issues in the coastal environment, Newport, RI, United States, Nov. 6-8, 1979
Proceedings of Annual Conference - Coastal Society 5, 289-303p 1980
ISSN 0140 1869 3 REFS.

Subfile B
Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

illus.: 2 tables, sketch maps
Latitude: N415000; Longitude: W0822500; W0823500
Descriptors: Ontario; geomorphology; engineering geology; processes; shorelines; erosion; Canada; controls; programs; Point Pelee; Northeast Beach; bays; beaches; trend-surface analysis; statistical methods; sediments; flux; renourishment; statistical analysis; Essex County
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1051674 81-38455

A continuum model on the basis of the double sliding, dilatative, free rotating model

Molenkamp, F.
Delft, Lab. Grondmechanica, LCM Meded. 21, 2: Tribute to Professor De Josselin de Jong, 161-170p.. 1980
11 REFS.

Subfile: B
Country of Publ.: Netherlands
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

illus.
Descriptors: soil mechanics; deformation; theoretical studies; dilatancy; sand; clastic sediments; loading; stress; strain; finite element analysis; statistical methods; equations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1050247 81-38396

The use of cluster analysis in the derivation of geotechnical classifications

Judd, A. G.
Bulletin of the Association of Engineering Geologists 17: 4

193-211p.. 1980
CODEN: ENGEA9 ISSN: 0004-5691 11 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

illus.: tables
Latitude: N520000; Longitude: W0004000; W0005000
Descriptors: England; soil mechanics; automatic data processing; engineering geology; methods; statistical methods; Europe; Buckinghamshire; Milton Keynes; cluster analysis; till; clastic sediments; classification; engineering properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1049691 81-38183

Hybrid modelling of soil-structure interaction

Gupte, S.; Lin, T.; Penzien, J.; Vah, C.
Univ. Calif., Earthquake Eng. Res. Cent., Berkeley, CA, USA
Report - Earthquake Engineering Research Center, College of Engineering, University of California, Berkeley, California 80/09, 120p.. 1980
ISSN: 0271-0323 79 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL; REPORT Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: NTIS, Springfield, VA, United States

illus.
Descriptors: soil mechanics; earthquakes; theoretical studies; effects; mathematical models; ground motion; structures; models; loading; torsion; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1049031 81-37304

Electric conductivity of young basaltic rocks of central and South-East Slovakia

Lastovickova, M.; Kropacek, V.
Stud. Geophys. Geod. (Cesk. Akad. Ved) 24: 4, 389-399p., 1980
CODEN: SGEGB8 ISSN: 0039-3169 7 REFS.

Subfile: B
Country of Publ.: Czechoslovakia
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables, sketch map
Descriptors: *Czechoslovakia; *rock mechanics; *igneous rocks; *engineering geology; geophysical surveys; materials properties; basalts; electrical surveys; electrical conductivity; Europe; basalt; basalt family; materials properties; Alpine Orogeny; Carpathian Orogeny; chemical composition; trace elements; statistical analysis; temperature; volcanic rocks
Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

1048502 81-32624

Scenarios of possible earthquakes affecting major California population centers, with estimates of intensity and ground shaking

U. S. Geological Survey, USA
Open-File Report (United States Geological Survey, 1978)
81-0115, 44p., 1981
CODEN: XGRUAG ISSN: 0196-1497 21 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL REPORT: MAP Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver, CO, United States
illus., tables; seism. maps
Latitude: N323000; N420000 Longitude: W1141500; W1243000
Descriptors: *California; *seismology; earthquakes; engineering geology; geologic hazards; maps; macroearthquakes; magnitude; intensity; seismicity maps; USGS; Ground motion; occurrence; prediction; probability; seismic risk; United States; faults
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1048083 81-32604

PUSH: a computer program for probabilistic finite element analysis of seismic soil-structure interaction

Romo-Ortiz, M. P.; Chen, J.; Lysmer, J.; Seed, H. B.
Univ. Calif., Earthquake Eng. Res. Cent., Berkeley, CA, USA

Report - Earthquake Engineering Research Center, College of Engineering, University of California, Berkeley, California 77-01, 86p., 1980
ISSN: 0271-0323
Subfile: B
Country of Publ.: United States
Doc Type: SERIAL REPORT Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: NTIS, Springfield, VA, United States
illus.
Descriptors: *automatic data processing; *soil mechanics; earthquakes; engineering geology; theoretical studies; effects; seismic response; PUSH; computer programs; structures; finite element analysis; statistical methods; mathematical models; models; interaction
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1047970 81-32478

Injection of cooling water into groundwater

Rouve, G.; Lukestratkoetter, H.
Gonzalez Villarreal, F. (president)
International Water Resources Association; Third World congress on water resources, Mexico, 1979
Papers - World Congress on Water Resources-Ponencies - Congreso Mundial sobre Aprovechamientos Hidraulicos 3, Vol. 6, 2688-2699p., 1979
9 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: *ground water; *waste disposal; *soil mechanics; *pollution; industrial waste; materials; properties; thermal pollution; thermal contamination; mass transfer; porous media; contamination; environmental geology; aquifers; heat transfer; materials; properties; finite element analysis; statistical methods; mathematical analysis
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

1047395 81-32655

Investigation of roof shales in Illinois coal mines

Conroy, P. J.
Univ. of Missouri, Rolla, MO, USA
Subfile: B
Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESES Bibliographic Level: MONOGRAPHIC
Languages: English
Latitude: N370000 Longitude: W0873000; W0913000
Descriptors: Illinois; mining geology; rock mechanics;
engineering geology; production control; materials;
properties; underground installations; roof control; shale
United States; coal; organic residues; mines;
experimental studies; statistical analysis; materials;
properties; clastic rocks
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Salt dome utilization and environmental considerations,
Baton Rouge, LA, United States, Nov. 22-24, 1976
Publ: La. State Univ., Inst. Environ. Stud.
171-187p., 1977
19 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Latitude: N320000 Longitude: W0920000; W0940000
Descriptors: Louisiana; structural geology; engineering
geology; salt tectonics; waste disposal; United States;
salt domes; tiltmeters; long-term storage; radioactive
waste; movement; rates; instruments; observations;
measurement; finite element analysis; statistical methods;
Gulf Coastal Plain; North America; leveling; seismic
response; northern Louisiana
Section Headings: 16 (STRUCTURAL GEOLOGY)

1046104 81-32081

Empirical determination of the gravity anomaly covariance function in mountainous areas

Lachapelle, G.; Schwarz, K. P.
Can. Dep. Mines, Energy Resour., Geod. Surv., Ottawa, ON,
CAN; Univ. Calgary, CAN
The Canadian Surveyor 34: 3, 251-264p., 1980
ISSN 0008-5103 11 REFS.
Subfile: B
Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
Note Presented at the 17th General assembly of the Int.
Assoc. Geod., Canberra, Australia, Dec. 2-14, 1979, illus.,
Tables, sketch map
Latitude: N080000 Longitude: W0100000; W1730000
Descriptors: North America; geodesy; maps; geophysical
surveys; cartography; surveys; gravity surveys;
topographic maps; engineering geology; statistical analysis;
regression analysis; free air gravity anomalies; covariance
function; Cordillera; altitude; least-squares analysis;
statistical methods; geoid
Section Headings: 20 (GEOPHYSICS, APPLIED)

1045835 81-31471

Monitoring current rates of salt dome movement

Thoms, R. L.; Manning, T. A.
La. State Univ., Baton Rouge, LA, USA
Salt dome utilization and environmental considerations;
proceedings of a symposium
Manning, J. D. (EDITOR); Thoms, R. L. (EDITOR)

1045397 81-32949

Discussion on "Uses and abuses of the finite element method in embankment analysis"

Kulhavy, F. H.
Syracuse Univ., Dep. Civ. Eng., Syracuse, NY, USA
Trevilian, S. J. (Chairperson)
V.O. Congreso panamericano de mecanica de suelos e
ingenieria de fundaciones, Buenos Aires, Argentina, Nov.
17-22, 1975
Congreso Panamericano de Mecanica de Suelos e Ingenieria de
Fundaciones-Panamerican Conference on Soil Mechanics and
Foundation Engineering 5, Vol. 5, 443-444p., 1975
1 REFS.
Subfile: B
Country of Publ.: Argentina
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Descriptors: dams; automatic data processing;
embankments; engineering geology; methods; design;
earthdams; rockfill dams; finite element analysis;
statistical methods; applications
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

engineering : fire-flooding; fire flooding; Bitkovskiy
Deposit: mathematical models; models; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1045310 81-33156

Zastosowanie nieliniowego modelu ośrodku w analizie rozkładu
naprężeń i odkształceń gruntu zbrojonego
A nonlinear medium model for analyzing stress and strain
conditions in reinforced soil

Sulikowska, I.
Arch. Hydrotech. 27: 1. 79-92p.. 1980
CODEN: AHDRAF ISSN: 0004-0789 6 REFS.

Subfile: B

Country of Publ.: Poland
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Polish Summary Languages: English
illus.: 2 tables

Descriptors: *soil mechanics; materials; properties;
stress; engineering geology; materials, properties; strain;
finite element analysis; statistical methods; deformation;
mathematical models; models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1045210 81-33016

Simulation model of failure process of rock and its
application to delayed failure

Nishimatsu, Y.; Yamaguchi, T.; Okubo, S.
J. Min. Metall. Inst. Jpn. 96: 1111. 593-599p.. 1980
ISSN: 0369-4194 5 REFS.

Subfile: B

Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Japanese Summary Languages: English
illus.

Descriptors: *rock mechanics; *automatic data processing;
materials; properties; engineering geology; failures;
failure; finite element analysis; statistical methods; p-t
conditions; models; mathematical models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1043522 81-33096

O vzneschnosti sozdaniya vnutriplastovogo goraniya nefli na
Bittervskom mestorozhdenii

The possible creation of interlayer fire-flooding of
petroleum at the Bittervskiy Deposit
Rylov, G. M.; Sukhan, V. S.; Zinchuk, M. S.
Neftepromysl. Delo, Ref. Nauchno-Tekh. Sp. 10. 15-17p..
1980

ISSN: 0470-6234

Subfile: B

Country of Publ.: Union of Soviet Socialist Republics
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Russian
illus.

Descriptors: *USSR; *engineering geology; petroleum

1043180 81-32731

Tension resistant inclusions in soils

Andraves, K. Z.; McGown, A.; Mashour, M. M.; Wilson-Fahmy,
R. F.
Journal of the Geotechnical Engineering Division 106: GT12.
1313-1326p.. 1980
CODEN: AJGEB6 ISSN: 0093-6405 13 REFS.

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: sects.

Descriptors: *soil mechanics; *automatic data processing;
deformation; engineering geology; inclusions; embankments;
earthfill dams; fabric; models; design; finite element
analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1043179 81-32878

Liquefaction study; a decision analysis framework

Halder, A.
Ga. Inst. Technol., Sch. Civ. Eng., Atlanta, GA, USA
Journal of the Geotechnical Engineering Division 106: GT12.
1297-1312p.. 1980
CODEN: AJGEB6 ISSN: 0093-6405 37 REFS.

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables

Descriptors: *soil mechanics; liquefaction; management;
sand; clastic sediments; statistical analysis; engineering
geology; methods; earthquakes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1042371 01042371

Physical property statistics and geologic noise
 Olfert, G. R. (Investigator)
 Geological Survey Professional Paper (Washington, D.C.)
 1175, 184p., 1980
 CODEN: XGPPA9 ISSN: 0096-0446
 Subfile: 8
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 Descriptors: *rock mechanics ; methods ; statistical
 Section Headings: 17 (GEOPHYSICS, GENERAL)

1041740 81-27152

A numerical approach to predicting stresses and displacements around a three-dimensional pressurized fracture
 Hungr, D.; Morgenstern, N. R.
 Univ. Alberta, Dep. Civ. Eng., Edmonton, AB, CAN
 Int. J. Rock Mech. Min. Sci. Geomech. Abstr. 17: 6,
 333-338p., 1980
 ISSN: 0148-9062 11 REFS.
 Subfile: 8
 Country of Publ.: International
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 Descriptors: *rock mechanics; *fractures; materials;
 properties; style; joints; stress; displacements;
 three-dimensional models; models; prediction; numerical
 analysis; finite element analysis; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1041739 81-27241

The failure of transversely isotropic rocks in triaxial compression
 Nova, R.
 Int. J. Rock Mech. Min. Sci. Geomech. Abstr. 17: 6,
 325-332p., 1980
 ISSN: 0148-9062 10 REFS.
 Subfile: 8
 Country of Publ.: International
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 Descriptors: *rock mechanics; materials; properties;
 isotropic materials; experimental studies; triaxial tests;
 failure plane; finite element analysis; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1041737 81-27351

Stereological interpretation of joint trace data: influence of joint shape and implications for geological surveys
 Warburton, P. M.
 Int. J. Rock Mech. Min. Sci. Geomech. Abstr. 17: 6,
 305-316p., 1980
 ISSN: 0148-9062 10 REFS.
 Subfile: 8
 Country of Publ.: International
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 Descriptors: *rock mechanics; *fractures; theoretical
 studies; style; models; joints; statistical analysis;
 prediction; discontinuities
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1041660 81-26907

Seismic hazards estimation study for Vandenberg AFB
 Battis, J. C.
 Air Force Surveys in Geophysics 418, 32p., 1979
 33 REFS.
 Subfile: 8
 Country of Publ.: United States
 Doc Type: SERIAL; REPORT Bibliographic Level: MONOGRAPHIC
 Languages: English
 Report No.: AFGL TR 79 0277
 Availability: NTIS, Springfield, VA, United States
 illus.; tables, geol. sketch map
 Latitude: N343000; N350000 Longitude: W1230000; W1230000
 Descriptors: *California; engineering geology; geologic
 hazards; seismic risk; modified Mercalli scale; intensity;
 Point Arguello; Vandenberg Air Force Base; United States;
 faults; statistical methods; ground motion; seismicity;
 acceleration; active faults
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1041153 81-27319

Osiowo-symetryczny stan naprezenia i odkształcenia w próbie
gruntu wzniesionej wklaskami zbrojenia
Axially symmetric stress and strain conditions in a
reinforced soil sample

Sulikowska, J.
Rozpr. Hydrotech. 42, 155-178p., 1980
CODEN: RZHTAE ISSN: 0035-9394 ISBN: 8307019409 10 REFS.

Subfile: B
Country of Publ.: Poland
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Polish
illus.: 7 tables
Descriptors: soil mechanics; materials; properties;
stress; materials; properties; samples; finite element
analysis; statistical methods; strain
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1040222 81-27042

Geibungsmechanische Aspekte bei der Endlagerung radioaktiver
Abfälle in Salzlagern unter besonderer Berücksichtigung
des Fließverhaltens von Steinsalz
Rock mechanical aspects of final storage of radioactive
waste in salt domes with emphasis on the flow of rock salt
Albrecht, H.; Hursche, U.

Geowissenschaftliche Gesichtspunkte zur Endlagerung
radioaktiver Abfallstoffe
Fortschr. Mineral. 58: 2, 212-247p., 1980
CODEN: FMRAL ISSN: 0015-8186 71 REFS.

Subfile: B
Country of Publ.: Germany, Federal Republic of
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: German
Summary Languages: English
illus.: 1 table
Descriptors: rock mechanics; deformation; waste disposal
; experimental studies; radioactive waste; salt; creep;
final storage; materials; properties; flow; finite element
analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1039778 81-26768

Effets de la canalisation a grand gabarit sur la qualite des
eaux du Doubs
Effects of the construction of a broad waterway on the water
quality of the Doubs
Claton, E.; Monni, D.; Sabeton, C.

Modelling the water quality of the hydrological
cycle--Modélisation de la qualité de l'eau du cycle
hydrologique

Modelling the water quality of the hydrological cycle.
Baden, Austria, Sept. 1978
Int. Assoc. Hydrol. Sci., Publ. 125, 59-68p., 1978
CODEN: PIHSD9 ISSN: 0144-7815 3 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: French
illus.: sketch map
Latitude: N470000; N473500 Longitude: E0070000; E0053000
Descriptors: France; hydrology; engineering geology;
hydrogeology; surveys; waterways; Doubs River; effects;
water quality; rivers and streams; hydraulics; dissolved
materials; oxygen; mathematical models;
statistical analysis; methods; Europe
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

1039771 81-27337

Determination of a friction angle for an alkaline igneous
rock

Udd, J. E.; Pakalnis, R.
McGill Univ., Dep. Mining, Metall. Eng., Montreal, PQ, CAN
Transactions of the Canadian Institute of Mining and
Metallurgy and of the Mining Society of Nova Scotia 82,
142-146p., 1979
CODEN: TCIMAT ISSN: 0371-5701 1 REFS.

Subfile: B
Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables

Descriptors: rock mechanics; slope stability; igneous
rocks; mining geology; materials; properties; landslides;
alkalic composition; production control; shear failure;
shear stress; methods; friction angles; experimental
studies; excavations; open-pit mining; cores; statistical
analysis; discontinuities

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1039769 81-27270

Ore estimation problems in an erratically mineralized orebody

Raymond, G.
Newmont Mines, Similkameen Div., Princeton, BC, CAN
Transactions of the Canadian Institute of Mining and Metallurgy and of the Mining Society of Nova Scotia 82, 102-110p., 1979
CODEN: TCIMAT ISSN: 0371-5701 3 REFS.

Subfile: B
Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables, sketch maps
Latitude: N500000; W500000 Longitude: W1200000; W1200000
Descriptors: British Columbia; mining geology; automatic data processing; engineering geology; production control; economic geology; open-pit mining; copper ores; Canada; production; copper; statistical analysis; Similkameen Mine; kriging; varlograms; sampling; Ingerbella orebody; gold; silver
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1039802 81-27283

Application of isotope techniques to the assessment of the consolidation effect on the structure of peats

Bzenciczak, J.
Stud. Geotech. Mech. 2: 1, 73-87p., 1980
ISSN: 0137-6385

Subfile: B
Country of Publ.: Poland
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
Descriptors: soil mechanics; sediments; peat; isotopes; cobalt; materials; properties; organic residues; tracers; utilization; porous materials; Co-60; consolidation; experimental studies; organic sediments; porosity; tracer experiments; seepage; fluid flow; statistical analysis; physical tests
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1039807 81-28956

Effects of reservoirs in karst areas on earthquakes

Stojic, P.
Hydrology Papers 99, 44p., 1980
CODEN: CHIPAY ISSN: 0069-6110 21 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
Languages: English
illus.: sketch map

Descriptors: Yugoslavia; seismology; engineering geology; earthquakes; causes; Europe; karst; reservoirs; dams; Grancarevo Dam; Trebianjica River; statistical analysis; mathematical models; models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1037861 81-27234

Diskriminanzanalytische Untersuchungen zur Identifikation der Ausloesefaktoren fuer Rutschungen in Verschiedenen Hoehenstufen der kolumbianischen Anden
Discriminant analysis for identifying the slip factors for landslides at different altitudes in the Colombian Andes

Neuland, H.
Catena 7: 2-3, 205-221p., 1980
CODEN: CIJPD3 ISSN: 0341-8162 23 REFS.
Subfile: B
Country of Publ.: Germany, Federal Republic of
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables, sketch maps
Latitude: S040000; N121500 Longitude: W0670000; W0790000
Descriptors: Andes; Colombia; engineering geology; slope stability; statistical analysis; discriminant analysis; statistical methods; South America; geologic hazards
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

control
Cedeno, J. M. I.; Maurell, O. S.; Verdecia, L. A. D.

Low-calorie solid resources
10th world mining congress, Istanbul, Turkey, Sept. 1979
World Min. Congr., Proc. 10, Vol. 4, 1-15p., 1979
10 REFS.

Country of Pub.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English
illus.: tables, sects., sketch map
Latitude: N195000; N231500 Longitude: W0740000; W0850000
Descriptors: *Cuba; *mining geology; *automatic data
processing; *economic geology; *engineering geology;
production control; *copper ores; methods; West Indies;
copper; statistical analysis; grade; reserves;
Mine: San Cayetano Formation; computer programs
Section Headings: 27 (ECONOMIC GEOLOGY, METALS)

1036686 81-23743

Improved cut-off grade and ore reserve decision through
geostatistics and a new cost accounting system at the mines of
Outokumpu Oy
Niskanen, P.

Low-calorie solid resources
10th world mining congress, Istanbul, Turkey, Sept. 1979
World Min. Congr., Proc. 10, Vol. 4, 1-12p., 1979
3 REFS.

Country of Pub.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English
illus.: tables
Latitude: N594500; N700000 Longitude: E0314500; E0190000
Descriptors: *Finland; *economic geology; *base metals;
Europe; *engineering geology; *mining geology; *production
control; reserves; economics; Outokumpu Oy; statistical
analysis
Section Headings: 27 (ECONOMIC GEOLOGY, METALS)

1036943 81-23081

The reference-correction method for improving the accuracy
of seismically locating trapped coal miners

Ruths, M. A.; Greenfield, R. J.
Chevron Geophys. Co., Houston, Tex., USA; Pa. State Univ.,
USA

Society of Exploration Geophysicists, 48th annual meeting,
San Francisco, Calif., United States, Oct. 29-Nov. 2, 1978
Soc. Explor. Geophys., Annu. Int. Meet., Abstr. 48, 81p.,
1978

CODEN: SGAMB7
Subfile: B
Country of Pub.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English
Descriptors: *geophysical methods; *automatic data
processing; underground installations; *geologic hazards;
mining geology; seismic methods; engineering geology;
mines; catastrophes; technology; applications; coal;
organic residues; deposits; techniques; least-squares
analysis; statistical methods; seismometers;
computer programs
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1036850 81-23045

Characterization of the average microscopic dimension in
granular media using ultrasonic pulses: theory and experiments

Ploenn, J. J.; Iseng, L.
Schlumberger-Dole Res. Cent., Ridgefield, Conn., USA; Mass.
Inst. Technol., USA

Society of Exploration Geophysicists, 48th annual meeting,
San Francisco, Calif., United States, Oct. 29-Nov. 2, 1978
Soc. Explor. Geophys., Annu. Int. Meet., Abstr. 48, 38-39
p., 1978

CODEN: SGAMB7
Subfile: B
Country of Pub.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English
illus.:
Descriptors: *geophysical methods; *soil mechanics;
seismic methods; elasticity; interpretation; theoretical
studies; elastic waves; acoustical waves; ultrasonic waves;
granular materials; experimental studies; attenuation;
statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1036689 81-23658

Variability of grade at Matahambre Mine; measures for its

1036685 81-24100

Contribution to the rationalization of drilling pattern for research of low grade coal by geostatistical method
Perisic, M.; Simic, M.

Low-calorie solid resources
10th world mining congress, Istanbul, Turkey, Sept. 1979
World Min. Congr., Proc. 10, Vol. 4, 1-7p., 1979
Subfile: B

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
Latitude: N410000 Longitude: E0230000; E0130000
Descriptors: Yugoslavia; automatic data processing; economic geology; engineering geology; lignite; drilling; Europe; organic residues; mining geology; production control; statistical analysis; patterns; reserves; feasibility studies
Section Headings: 29 (ECONOMIC GEOLOGY, ENERGY SOURCES)

1036371 81-22R88

Finite element technique for two-dimensional consolidation

Gray, D. G.
Inst. Civ. Eng. (Lond.), Proc. 69, Part 2: Research and theory, 535-542p., 1980
CODEN: ICEAT ISSN: 0307-8361 6 REFS.

Subfile: B
Country of Publ.: United Kingdom
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: automatic data processing; soil mechanics; engineering geology; materials; properties; consolidation; two-dimensional models; models; mathematical models; pore pressure; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1036347 81-23160

Foundation of suspension bridge on weathered granite

Yanagata, M.
Tauchi-to-Kiso 28: 7(270), 61-66p., 1980
3 REFS.

Subfile: B
Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Japanese Summary Languages: English
illus.: tables, sects.

Latitude: N300000 Longitude: E1470000; E1290000
Descriptors: Japan; rock mechanics; engineering geology; case studies; foundations; deformation; Asia; weathered

materials; Bisan sets bridge; bearing capacity; finite element analysis; statistical methods; creep; shear strength
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1035931 81-23402

Rezente Bewegungen im nordlichen Oberrheingraben; Verknuepfung von Messdaten aus Geodasie, Geologie und Bodenmechanik

Recent movement in the northern Upper Rhine Graben; integration of geodetic, geologic and soil mechanics data
Von Fahlbusch, K.; Hein, G.; Kistermann, R.
Neues Jahrb. Geol. Palaeontol., Monatsh. 8, 460-476p., 1980

CODEN: NJGMA2 ISSN: 0028-3670 14 REFS.
Subfile: B
Country of Publ.: Germany, Federal Republic of
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: German Summary Languages: English

illus.: tables, sketch maps
Latitude: N490000; N500000 Longitude: E0090000; E0080000
Descriptors: West Germany; geodesy; ground water; soil mechanics; structural geology; surveys; site exploration; neotectonics; interpretation; Germany; Europe; Upper Rhine Graben; Hesse; regression analysis; least-squares analysis; statistical methods; mathematical models; models; grabens; leveling
Section Headings: 24 (SURFICIAL GEOLOGY, QUATERNARY GEOLOGY)

1035043 81-22911

Zur Abhaengigkeit der Gesteinsdichte von chemischen Oxidgehalten und Ultraschallgeschwindigkeiten
Dependence of rock density on chemical oxide contents and ultrasonic velocities

Heyne, K. H.
Z. Angew. Geol. 26: 4, 206-209p., 1980
CODEN: ZANGAK ISSN: 0044-2259 2 REFS.

Subfile: B
Country of Publ.: German Democratic Republic
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: German Summary Languages: Russian
tables

Descriptors: rock mechanics; materials; properties; density; materials; properties; chemical composition; statistical analysis; regression analysis; factor analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1034059 81-22733

Mesoscale relationships of talus and insolation, San Juan Mountains, Colorado

Hiers, A. D.
Arizona State Univ., Tempe, AZ, USA
255p., 1980
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Latitude: N370000; N374500 Longitude: W1063000; W1073000
Descriptors: Colorado; engineering geology; slope stability; Hinsdale County; Archuleta County; United States; San Juan Mountains; talus slopes; insolation; rockfalls; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Simple statistics for elastic properties from seismic analysis

Robinson, L.
Idaho State Univ., Pocatello, ID, USA
Seventeenth annual engineering geology and soils engineering symposium, Moscow, ID, United States, April 4-6, 1979
Proc. Annu. Eng. Geol. Soils Eng. Symp. 17, 219-233p., 1979

CODEN: EGSSBT ISSN: 0071-0318 4 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: geophysical methods; soil mechanics; seismic methods; elasticity; interpretation; statistical methods; deformation; elastic properties; elastic waves
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1033850 81-22826

Estimating the probability of occurrence of surface faulting earthquakes on the Wasatch fault zone, Utah

Cliff, L. S.; Patwardhan, A. S.; Copper-Smith, K. J.
Woodward-Clyde Consult., San Francisco, CA, USA

Special papers on seismicity of the Wasatch Front and Great Basin-Sierra Nevada boundary

Anderson, E. R. (organizer); Ryall, A. S. (organizer); Smith, R. B. (organizer)
Conference on earthquake hazards along the Wasatch Front and in the Reno-Carson City area, Alta, UT, United States, July 29-Aug. 1, 1979
Bulletin of the Seismological Society of America 70, 5, 1463-1478p., 1980

CODEN: BSSAAP ISSN: 0037-1106 17 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., tables, sketch map
Latitude: N390000; N421500 Longitude: W113000; W112000
Descriptors: Utah; seismology; faults; engineering geology; earthquakes; displacements; structural geology; geologic hazards; active faults; seismic risk; neotectonics; Davis County; Utah County; United States; Wasatch Front; seismicity; Wasatch fault; fault zones; Kaysville; Hobbie Creek; probability; prediction; Holocene; Quaternary; normal faults
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1037597 81-23074

1033595 81-22538

Seepage from partially saturated mine waste disposal systems

Bloomsburg, G. L.; Bloomfield, R. A.
Univ. Idaho, Agric. Eng. Dep., Moscow, ID, USA; U. S. Bur. Mines, USA

Seventeenth annual engineering geology and soils engineering symposium, Moscow, ID, United States, April 4-6, 1979
Proc. Annu. Eng. Geol. Soils Eng. Symp. 17, 181-196p., 1979

CODEN: EGSSBT ISSN: 0071-0318 9 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: hydrology; automatic data processing; pollution; ground water; waste disposal; seepage; environmental geology; water; models; finite element analysis; statistical methods; computer programs; UNSAT2; partial saturation; saturated materials; mines; levels; mathematical models; theoretical studies
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

1033592 81-23144

Mathematical modeling approach for delineating landslide hazards in watersheds

Ward, T. J.; Li, R.; Simons, D. B.
Colo. State Univ., Dep. Civ. Eng., Fort Collins, CO, USA
Seventeenth annual engineering geology and soils engineering symposium, Moscow, ID, United States. April 4-6, 1979
Proc. Annu. Eng. Geol. Soils Eng. Symp. 17, 109-142p., 1979

CODEN: EGSSBT ISSN: 0071-0318 39 REFS.

Subfile: 8

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus., tables, sketch maps

Latitude: N420000; Longitude: W1163500; W1243500

Descriptors: geological hazards; slope stability; landslides; watersheds; probability; mathematical models;

models; theoretical studies; Oregon; United States

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1033258 81-22943

Soil-pile-structure interaction of offshore structures during an earthquake

Kagawa, T.; Kraft, L. M., Jr.

McClelland Eng., USA

1980 Offshore technology conference, Houston, TX, United States, May 5-8, 1980

Proceedings - Offshore Technology Conference 12, Vol. 3, 235-245p., 1980

CODEN: OSTCBA ISSN: 0160-3663 14 REFS.

Subfile: 8

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: soil mechanics; foundations; earthquakes; piles; effects; theoretical studies; seismic response;

structures; offshore; loading; finite element analysis; statistical methods; mathematical models; models

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1033246 81-22810

Compaction of dry or fluid-filled porous materials

Carroll, M. M.

Univ. Calif. Berkeley, Dep. Mech. Eng., Berkeley, CA, USA

Second Engineering Mechanics Division specialty conference

; Mechanics of heterogeneous media, Raleigh, NC, United States, 1977

Journal of the Engineering Mechanics Division 106: EMR, 969-990p., 1980

CODEN: JMCEA3 ISSN: 0044-7951 35 REFS.

Subfile: 8

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: rock mechanics; materials; properties; porous materials; compaction studies; mathematical models;

rocks; tuff; pyroclastics and glasses; aluminum; igneous

models; pyroclastics; elastic rocks; strength; finite

element analysis; statistical methods; theoretical studies

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1032927 81-21761

Quantitative analysis of tectonic jointing in sediments

Vuchev, V.

26th international geological congress, Paris, France, July 7-17, 1980

Int. Geol. Congr. Abstr.--Congr. Geol. Int., Resumes 26, 406p., 1980

CODEN: IGABBY

Subfile: 8

Country of Publ.: Varies

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

Descriptors: structural analysis; fractures; rock

mechanics; automatic data processing; style; methods;

structural geology; joints; statistical methods;

quantitative methods; deformation; stress

Section Headings: 16 (STRUCTURAL GEOLOGY)

1031593 81-17266

Evaluation of in-situ soil damping characteristics
Shannon & Wilson, Seattle, WA, USA; Agabian Associates, 2E1
Segundo, CA 3USA
170p., 1980
23 REFS.

Subfile: B
Doc Type: REPORT Bibliographic Level: MONOGRAPHIC
Languages: English
Report No.: NUREG/CR-1638 R6, RA
Availability: NTIS, Springfield, VA, United States
illus.

Descriptors: soil mechanics; materials; properties;
strain; damping; in situ; stress; experimental studies;
applications; hysteresis; loop methods; equilibrium methods;
finite element analysis; statistical methods; impulse
testing; shear modulus; elastic constants; sand; clastic
sediments; clays
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1031433 81-17906

Berechnung von Salzavernen mit Finite-Element-Verfahren
Calculation for salt caverns using the finite element method
Vollstedt, H. W.

Fifth symposium on salt
Fifth symposium on salt, Hamburg, Germany, Federal
Republic of, May 29-June 1, 1979
Symposium on Salt 5, Vol. 1, 451-459p., 1980
3 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: German
illus.

Descriptors: underground installations; rock mechanics;
materials; properties; caverns; stress; salt; methods;
stability; strength; experimental studies; mining geology;
engineering geology; finite element analysis; statistical
methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1030703 81-17641

Otsenka koefitsiyenta poristosti v anagopliastovom
produktivnom razreze na polskovom etape
Evaluation of the coefficient of porosity in a multi-layered
producing section at the exploratory stage
Korostyshchevskiy, M. N.; Kolyanov, K. G.
Neftegazov. Geol. Gnefiz. 4, 10-12p., 1980
CODEN: NFGSAX ISSN: 0028-1182

Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Russian
illus., table
Descriptors: engineering geology; sedimentary rocks;
petroleum engineering; properties; site exploration;
porosity; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1030676 81-17561

Sull'identificazione numerica di alcuni parametri geotecnici
Numerical identification of some geotechnical parameters
Giorda, G.
Riv. Ital. Geotec. 13, 2, 94-105p., 1979
CODEN: RITGAI ISSN: 0557-1405 16 REFS.

Subfile: B
Country of Publ.: Italy
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Italian Summary Languages: English
illus.

Descriptors: soil mechanics; automatic data processing;
materials; properties; engineering geology; numerical
analysis; clays; theoretical studies; in situ; finite
element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1030672 81-17494

Sull'impiego dell'analisi fattoriale nella esplorazione
geotecnica del sottosuolo
Use of factor analysis in geotechnical exploration of the
subsurface
Crespellani, T.; Loi, A.
Riv. Ital. Geotec. 13, 3, 176-193p., 1979
CODEN: RITGAI ISSN: 0557-1405 21 REFS.

Subfile: B
Country of Publ.: Italy
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Italian Summary Languages: English
illus., tables

Descriptors: engineering geology; site exploration;
factor analysis; theoretical studies; mathematical models;
models; exploration; statistical methods; clays; sand;
clastic sediments
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1030666 81-17740

**Interazione dinamica terreno-struttura in una pila da ponte fondata su pali
Dynamic soil-structure interaction in a pile of a bridge on pile foundations**

Muti, C.

Riv. Ital. Geotec. 14: 1, 9-26p., 1980

CODEN: RITGAI ISSN: 0557-1405 12 REFS.

Subfile: B

Country of Publ.: Italy

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Italian Summary Languages: English

illus.: table

Descriptors: foundations; soil mechanics; piles; seismic response; sand; clastic sediments; Poisson's ratio; elastic constants; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1030441 81-17834

Reconstruction of stress fields for the Aegean by a finite element model

Shulman, M.; Skala, M.

Tectonic stresses in the Alpine-Mediterranean region

Scheidegger, A. L. (EDITOR)

Working Group 3, Interunion Commission of Geophysics and the European Geophysical Society symposium on tectonic stresses in the Alpine-Mediterranean region, Vienna, Austria, Sept. 13-14, 1979

Rock Mech., Suppl. 9, 245-255p., 1980

ISSN: 0080-3375 ISBN: 3211815783-0387815783 30 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.

Latitude: N360000; N410000 Longitude: E0282000; E0230000

Descriptors: Aegean Sea; Turkey; Greece; faults; engineering geology; structural geology; seismology; mechanics; rock mechanics; neotectonics; stress; compression; Mediterranean Sea; theoretical studies; Middle East; Europe; tectonics; evolution; lineaments; fractures; numerical models; finite element analysis; statistical methods; aerial photography; Holocene; Quaternary; stress fields; Anatolia; plate tectonics; processes

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1030441 81-17717

Stress distribution in overthrusting slabs and mechanics of

Jura deformation

Mueller, W. H.; Hsu, K. J.

Tectonic stresses in the Alpine-Mediterranean region

Scheidegger, A. L. (EDITOR)

Working Group 3, Interunion Commission of Geophysics and the European Geophysical Society symposium on tectonic stresses in the Alpine-Mediterranean region, Vienna, Austria, Sept. 13-14, 1979

Rock Mech., Suppl. 9, 219-232p., 1980

ISSN: 0080-3375 ISBN: 3211815783-0387815783 33 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

Note: Laboratory of Experimental Geology, Zurich, Switzerland, Contrib. No. 145, illus., table, sects.

Latitude: N454500; N474500 Longitude: E0103000; E0055000

Descriptors: Switzerland; orogeny; Alps; faults; engineering geology; tectonophysics; structural geology; evolution; displacements; rock mechanics; crust; neotectonics; Alpine orogeny; thrust faults; Europe; tectonics; Jura Mountains; stress; overthrust faults; layered materials; theoretical studies; anhydrite; sulfates; limestone; carbonate rocks; crystalline basement rocks; underthrust faults; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1030345 81-17748

Surface settlements due to shield tunnelling in Rome

Ottaviani, M.; Cappellari, G.

Int. Assoc. Eng. Geol., Bull. 21, 15-20p., 1980

CODEN: BIEGB6 ISSN: 0074-1612 6 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

illus.: tables, sect.

Latitude: N4363000; N473000 Longitude: E0190000; E0063000

Descriptors: Italy; engineering geology; tunnels; Europe; settlement; soil mechanics; finite element analysis; statistical methods; stress; strain

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1029223 81-16292

A finite element method for studying the transient non-linear thermal creep of geological structures

Anderson, C. A.; Bridwell, R. J.
Los Alamos Sci. Lab., Los Alamos, NM, USA
Int. J. Numer. Anal. Methods Geomech. 4: 3, 255-276p., 1980

ISSN: 0363-9061 15 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

illus.

Descriptors: *deformation; *geophysics; *automatic data processing; *theoretical studies; structural geology; creep; finite element analysis; statistical methods; time; temperature; engineering geology; folds; rifting; salt tectonics; stress; SANGRE; diapirism; upper mantle; mantle; mathematical models; models
Section Headings: 17 (GEOPHYSICS, GENERAL)

1029214 81-17805

Vertical and horizontal land deformation due to fluid withdrawal

Safai, N. M.; Pinder, G. F.
Princeton Univ., Dep. Civ. Eng., Princeton, NJ, USA
Int. J. Numer. Anal. Methods Geomech. 4: 2, 131-142p., 1980

ISSN: 0363-9061 19 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

illus.

Descriptors: *soil mechanics; *land subsidence; *theoretical studies; causes; finite element analysis; statistical methods; ground water; levels; porous media; mathematical models; models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1029207 81-17611

Finite element models for rock fracture mechanics

Ingraffea, A. R.; Huse, F. E.
Cornell Univ., Sch. Civ. and Environ. Eng., Ithaca, NY, USA;
Univ. Colo., USA
Int. J. Numer. Anal. Methods Geomech. 4: 1, 25-43p., 1980

ISSN: 0363-9061 24 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English
illus.

Tables

Descriptors: *rock mechanics; *deformation; *fractures; *theoretical studies; models; finite element analysis; statistical methods; mathematical models; propagation; compression; tension

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1029206 81-17880

Finite element analyses of isotropic and anisotropic cohesive soils with a view to correctly predicting impending collapse

Toh, C. T.; Sloan, S. W.
Int. J. Numer. Anal. Methods Geomech. 4: 1, 1-23p., 1980

ISSN: 0363-9061 19 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

illus.

Descriptors: *soil mechanics; *theoretical studies; failure; prediction; finite element analysis; statistical methods; cohesive materials; isotropic materials; anisotropic materials; elasticity; plasticity; mathematical models; models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1029148 81-16262

Fracture densities in the Rattlesnake Mountain fold, Wyoming

Goodwin, E. R. K.
Univ. of Oklahoma, Norman, OK, USA
unpublished, 1979

Subfile: B

Degree Level: Master

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Language: English

Latitude: N420000 Longitude: W1060000; W1070000
Descriptors: *structural analysis; *rock mechanics; *sedimentary rocks; structural geology; fractures; field studies; carbonate rocks; strain; Natrona County; Big Horn Formation; United States; dolostone; Rattlesnake Mountain; folds; probability; Basin and Range Province
Section Headings: 16 (STRUCTURAL GEOLOGY)

1028724 81-17183

Petrofizika osadochnykh porod v glubinykh usloviyakh
Petrophysics of sedimentary rocks under conditions of great depth

Avchyan, G. M.; Matveyenko, A. A.; Stefankevich, Z. B.
 Publ.: Izd. Nedra
 224p., 1979
 164 REFS.

Subfile: B
 Country of Publ.: Union of Soviet Socialist Republics
 Doc Type: BOOK Bibliographic Level: MONOGRAPHIC
 Languages: Russian
 illus.

Descriptors: rock mechanics; sedimentary rocks; experimental studies; diagenesis; dynamics; fabric; structure; chemical composition; mineral composition; deformation; numerical analysis; porosity; statistical analysis; compression
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1028088 81-16803

Issledovaniya anomalii seysmookusticheskoy aktivnosti ugol'nykh plastov Donbassa
Seismo-acoustical anomalies in coal seams of the Donets Basin

Glushko, V. T.; Ivanov, V. S.; Khokholev, V. K.

Vnezapnye vybrosy na bol'shikh glubinyakh: sbornik nauchnykh trudov

Abramov, F. A. (EDITOR); Zabitaylo, V. Y. (EDITOR); Zorin, A. N. (EDITOR); Shevelov, G. A. (EDITOR)
 Publ.: Izd. Nauk. Dumka
 33-40p., 1979
 5 REFS.

Subfile: B
 Country of Publ.: Union of Soviet Socialist Republics
 Doc Type: BOOK Bibliographic Level: ANALYTIC
 Languages: Russian
 illus.

Latitude: N470000; N483000 Longitude: E0400000; E0373000
 Descriptors: USSR; mining geology; geophysical surveys; engineering geology; concepts; seismic surveys; geologic hazards; rock bursts; mathematical models; Donets Basin; Ukraine; statistical methods
 Section Headings: 20 (GEOPHYSICS, APPLIED)

1027936 81-17583

FEM study of elastic phase of pressuremeter test
 Hartman, J. P.; Schmertmann, J. H.
 Fla. Technol. Univ., Dep. Civ. Eng., Orlando, FL, USA; Univ. Fla., USA

Proceedings of the Conference on in situ measurement of soil properties: Volume 1
 Conference on in situ measurement of soil properties: specialty conference of the Geotechnical Engineering Division, ASCE, Raleigh, NC, United States, June 1-4, 1975
 Publ.: Am. Soc. Civ. Eng.
 190-207p., 1975
 12 REFS.

Subfile: B
 Country of Publ.: United States
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 illus., tables

Descriptors: soil mechanics; materials; properties; methods; materials, properties; measurement; in situ; pressuremeters; elastic constants; boreholes; mathematical models; models; finite element analysis; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1027526 81-18860

Grain size analysis and petrographic examination of a gravel deposit relative to engineering quality, W. Lafayette, Indiana

West, T. R.; Okagbue, C.
 Purdue Univ., Dep. Geosci., West Lafayette, Indiana, USA
 The Geological Society of America, North-Central Section, 14th annual meeting, Bloomington, Indiana, United States, April 10-11, 1980

Geol. Soc. Am., Abstr. Programs 12: 5, 260p., 1980
 CODEN: GAAPBC ISSN: 0016-7592

Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English

Latitude: N402000; N402500 Longitude: W0865000; W0865500
 Descriptors: Indiana; sediments; soil mechanics; rock mechanics; economic geology; classic sediments; materials; properties; gravel deposits; Tippecanoe County; United States; West Lafayette; petrography; textures; grain size; gravel; deposits; statistical analysis; engineering properties; terraces; Wabash River; materials, properties; construction materials; aggregate
 Section Headings: 28 (ECONOMIC GEOLOGY, NONMETALS)

1025511 81-13047
A model with non-reflecting boundaries for use in explicit soil-structure interaction analyses
 Kunar, R. R.; Rodriguez-Ovejero, L.
 Principia Mech., London, GB8: Dames and Moore, GB8
 Earthquake Eng. Struct. Dyn. 8: 4, 361-374p., 1980
 CODEN: IJEEBG ISSN: 0098-8847 25 REFS.
 Subfile: B
 Country of Publ.: International
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 Descriptors: soil mechanics; earthquakes; foundations; theoretical studies; seismic response; effects; mathematical models; structures; models; non-reflecting boundaries; elastic waves; finite element analysis; statistical methods; finite difference analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1025510 81-13189
Seismicity and seismic intensities in Jamaica, West Indies; a problem in risk assessment
 Shepherd, J. B.; Aspinall, W. P.
 Earthquake Eng. Struct. Dyn. 8: 4, 315-335p., 1980
 CODEN: IJEEBG ISSN: 0098-8847 42 REFS.
 Subfile: B
 Country of Publ.: International
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus., tables, geol. sketch maps
 Latitude: N180000; N210000 Longitude: W0720000; W0820500
 Descriptors: Jamaica; seismology; engineering geology; seismicity; earthquakes; West Indies; seismic risk; seismic intensity; history; seismotectonics; Caribbean Plate; North American Plate; Cayman Trough; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1027159 81-12889
Estimating the probability of occurrence of surface faulting earthquakes on the Wasatch fault zone, Utah
 Cluff, L. S.; Patwardhan, A. S.; Copper-Smith, K. J.
 Woodward Clyde Consult., San Francisco, CA, USA
Proceedings of Conference X: Earthquake hazards along the Wasatch and Sierra-Nevada frontal fault zones
 Evernden, J. F. (COMPILER)
 Conference X: Earthquake hazards along the Wasatch and Sierra-Nevada frontal fault zones, Alta, UT, United States, July 29-Aug 1, 1979
 U S Geol. Surv., Open-File Rep. 80-801, 276-298p., 1980
 CONF. XGRDAG ISSN: 0196-1497 16 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL REPORT; CONFERENCE PUBLICATION
 Bibliographic Level: ANALYTIC
 Languages: English
 Availability: U. S. Geol. Surv., Open-File Serv. Sect., Branch Distrib., Denver, CO, United States
 illus., tables, sketch map
 Latitude: N390000; N420000 Longitude: W110000; W1130000
 Descriptors: Utah; seismology; faults; earthquakes; engineering geology; displacements; geologic hazards; seismic risk; active faults; Wasatch Front; Wasatch Fault; United States; fault zones; neotectonics; probability; prediction
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1025673 81-13158
Simple statistics to improve refraction seismic results
 Robinson, L.
 Idaho State Univ., Pocatello, ID, USA
 Sixteenth annual engineering geology and soils engineering symposium, Boise, ID, United States, April 5-7, 1978
 Proc. Annu. Eng. Geol. Soils Eng. Symp. 16, 183-199p., 1978
 CODEN: EGSRIT ISSN: 0071-0318 4 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 illus., tables
 Descriptors: geophysical methods; soil mechanics; seismic methods; methods; interpretation; statistical methods; refraction methods; regression analysis; errors; velocity; depth
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1024735 81-13185

Preliminary results on comparison of adsorption-desorption methods and statistical techniques to generate Kd predictor equations

Serie, R. J. ; Rai, D. ; Relyea, J. F.
Pac. Northwest Lab., Richland, WA, USA

Proceedings of the Workshop on The migration of long-lived radionuclides in the geosphere--Compte rendu d'une reunion de travail sur la migration des radionuclides a vie longue dans la geosphere

The migration of long-lived radionuclides in the geosphere.
Brussels, Belgium, Jan. 29-31, 1979
Publ: OECD Nucl. Energy AgencyComm. Eur. Communities
63-77p., 1979
27 REFS.

Subfile: B

Country of Publ.: France
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: tables
Descriptors: waste disposal ; radioactive waste ; storage legislation; automatic data processing; engineering geology; adsorption; desorption
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1024128 81-12790

Investigation of fracture traces and underground roof fall fatalities in the Southern Anthracite Field, Pennsylvania

Petrus, C. A.
Pennsylvania State Univ., University Park, Pa., USA
unknownp., 1979

Subfile: B

Degree Level: Master's
Country of Publ.: United States
Doc Type: THESIS; MAP Bibliographic Level: MONOGRAPHIC
Languages: English
text; map
Latitude N394500; Longitude W0744500; W0803500
Descriptors: Pennsylvania; fractures ; engineering geology; structural geology; patterns ; mining geology; geologic hazards; lineaments; United States; Southern Anthracite coal field; fracture trace map; Minersville Quadrangle; Pine Grove Quadrangle; Tamaqua Quadrangle; lower City Quadrangle; Tremont Quadrangle; mine accidents; mine fatalities; land subsidence; coal mines; faults; mine roof falls; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1027414 81-13204

A simple device for the direct shear-strength testing of intact rock

Stacey, T. R.
S. Afr. Inst. Min. Metall., J. RO: 3, 129-130p., 1980
ISSN: 0038-223X 3 REFS.

Subfile: B

Country of Publ.: South Africa
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: plate
Descriptors: rock mechanics ; materials; properties ; shear strength; methods; instruments; statistical analysis; experimental studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1022655 81-13254

On the determination of stress state in the simple shear apparatus

Wood, D. M.; Drescher, A.; Budhu, M.
Geotech. Test. J. 2: 4, 211-222p., 1979
CODEN: GTU00J ISSN: 0149-6115 15 REFS.

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: soil mechanics ; materials; properties ; sand; mathematical models; models; shear stress; clastic sediments; materials; properties; experimental studies; grain size; friction; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1022654 81-13021
Comparisons of field density test results
 Kinnabek, T. J.; Ferris, W. R.
 Lau Engin. Test. Co., Miami, FL, USA; Bechtel, San Francisco, Calif., USA
 Geotech. Test. J. 2: 4, 206-210p., 1979
 CODEN: GJDDJ4 ISSN: 0149-6115
 Subfile: B

Country of Pub.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.: tables
 Descriptors: *soil mechanics; *materials; *properties; *sand; *materials; *properties; *compaction; *grain size; *clastic sediments; *statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1022651 81-13195
Automated data acquisition, transducers, and dynamic recording for the geotechnical testing laboratory
 Silver, M. L.
 Geotech. Test. J. 2: 4, 185-189p., 1979
 CODEN: GJDDJ4 ISSN: 0149-6115 1 REFS.
 Subfile: B

Country of Pub.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.: tables
 Descriptors: *automatic data processing; *engineering geology; *data acquisition; *statistical analysis; *data storage
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1021150 81-08270
Loesung von Fragen der Stabilität des Liegenden im Sokolover Braunkohlenrevier (CSR) unter Beachtung der Thermalquellen
 Study of the stability of the underlying bed in the Sokolov lignite district (Czechoslovakia) taking the hot springs into account
 Siska, L.; Aldorf, J.; Korinek, R.
 Neue Bergbautech. 10: 3, 150-153p., 1980
 CODEN: NEBBAB ISSN: 0047-9403 2 REFS.
 Subfile: B

Country of Pub.: German Democratic Republic
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: German
 Note: Presented at Bergakademie Freiberg on Berg and Huettenmaennischer Tag, Colloquium 1, June 1979. illus.: table
 Descriptors: *Czechoslovakia; *soil mechanics; *engineering

geology; mines; stability; Europe; experimental studies; hot springs; Sokolov lignite district; finite element analysis; statistical methods; rheology; ground water; mathematical models; models
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1020045 81-07696
Izotopnye issledovaniya v gidrogeologii i inzhenernoy geologii
Isotope studies in hydrogeology and engineering geology
 Dubinchuk, V. T. (EDITOR); Polyakov, V. A. (EDITOR)
 Vses. Nauchno-Issled. Inst. Gidrogeol. Inzh. Geol., Tr., N. S. 131, 91p., 1979
 ISSN: 0541-1025
 Subfile: B

Country of Pub.: Union of Soviet Socialist Republics
 Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
 Languages: Russian
 Note: Individual articles are cited separately. illus.: tables
 Descriptors: *isotopes; *carbon; *soils; *ground water; *chemistry; *geochemistry; *C-14; *mathematical methods; *methods; *statistical analysis
 Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

1019886 81-08109
Method for specifying soil compaction
 Essigmann, M. F., Jr.; Altschaeffl, A. G.; Lovell, C. W.
 Lincoln-Devore Test Lab., Colorado Springs, Colo., USA; Purdue Univ., Dep. Civ. Eng., West Lafayette, Indiana, USA
 Stabilization and compaction
 Transp. Res. Rec. 690, 29-34p., 1979
 CODEN: TRERDM ISSN: 0361-1981 ISBN: 0308028361 15 REFS.
 Subfile: B

Country of Pub.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.: tables
 Descriptors: *soil mechanics; *automatic data processing; *experimental studies; *engineering geology; *consolidation; *mathematical models; *models; *statistical analysis; *density; *moisture; *data analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1019885 81-08191

Using indicative properties to predict the density-moisture relationship of soils
Livneh, M.; Ishai, I.

Stabilization and compaction
Transp. Res. Rec. 690, 22-28p., 1978
CODEN: TRREDM ISSN: 0361-1981 ISBN: 0309028361 15 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables

Descriptors: soil mechanics; highways; materials; properties; foundations; clays; pavement; methods; statistical analysis; materials; properties; density; moisture; embankments
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1019884 81-08301

Storage, retrieval, and analysis of compacted shale data
van Zyl, D. J. A.; Wood, L. E.; Lovell, C. W.; Sistianno, W.

Purdue Univ., Dep. Civ. Eng., West Lafayette, Indiana, USA;
Indiana State Highw. Comm., Indianapolis, Indiana, USA

Stabilization and compaction
Transp. Res. Rec. 690, 14-22p., 1978
CODEN: TRREDM ISSN: 0361-1981 ISBN: 0309028361 7 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables

Descriptors: Indiana; soil mechanics; automatic data processing; highways; engineering geology; materials; properties; foundations; shale; pavement; United States; data analysis; data storage; data retrieval; materials; properties; clastic rocks; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1019878 81-08247

Predicting field compacted strength and variability
Price, J. T.; Altschaeffl, A. G.; Lovell, C. W.
Purdue Univ., Dep. Civ. Eng., West Lafayette, IN, USA

Subdrainage and soil moisture
Transp. Res. Rec. 705, 42-48p., 1979
CODEN: TRREDM ISSN: 0361-1981 ISBN: 0309029511 10 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables

Latitude: N374500; N414500 Longitude: W0844500; W0881000
Descriptors: soil mechanics; Indiana; materials; properties; engineering geology; shear strength; highways; materials; properties; density; moisture; consolidation; statistical analysis; embankments; foundations; United States; experimental studies; pavement
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1019877 81-08291

Subgrade stability
Thompson, M. R.

Univ. Ill., Dep. Civ. Eng., Urbana, IL, USA

Subdrainage and soil moisture

Transp. Res. Rec. 705, 32-41p., 1979
CODEN: TRREDM ISSN: 0361-1981 ISBN: 0309029511 25 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: table

Latitude: N370000; N423000 Longitude: W0873000; W0813000
Descriptors: soil mechanics; highways; Illinois; materials; properties; foundations; engineering geology; strength; pavement; materials; properties; testing; deformation; moisture; drainage; consolidation; stress; loading; bearing capacity; shear strength; United States; finite element analysis; statistical methods; granular materials
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1019842 81-06957

Issledvaniya po matematicheskoy geologii
Research in mathematical geology
Romanova, M. A. (EDITOR); Sapozov, N. A. (EDITOR)
Publ.: Izd. Nauka
231p., 1978
Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc Type: BOOK Bibliographic Level: MONOGRAPHIC
Languages: Russian
Note: Individual articles within scope are cited separately.
illus., tables
Descriptors: mathematical geology; theoretical studies; statistical analysis; mathematical methods; numerical analysis; petrology; mathematical models; models; engineering geology; economic geology; trend-surface analysis; statistical methods; multivariate analysis; paragenesis; Markov chain analysis; computer programs; regression analysis; crosscorrelation
Section Headings: 15 (MISCELLANEOUS & MATHEMATICAL GEOLOGY)

1019704 81-08240

Finite element analysis applied to rock mechanics problems in underground mining of bauxite
Passarlis, E. K. S.

Bauxites
Augustis, S. S. (chairperson)
4th international congress for the study of bauxites, alumina, and aluminum. Athens, Greece, Oct. 9-12, 1978
[Pap.] - Int. Congr. Stud. Bauxites, Alumina Alum. (ICSORA) 4, Vol. 2, 704-714p., 1978
7 REFS.
Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: automatic data processing; rock mechanics; bauxite; engineering geology; production; materials; properties; methods; mining geology; computers; simulation; in situ; finite element analysis; statistical methods; stress; loading; stability; exploration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1019163 81-08041

Analysis of an underground opening in jointed rock
Rodriguez Perez, C. E.
Univ. of Illinois, Urbana, IL, USA
226p., 1980

Subfile: B
Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Latitude: N384800; N390000 Longitude: W0765300; W0770700
Descriptors: District of Columbia; rock mechanics; engineering geology; case studies; Dupont Circle; installations; subways; United States; finite element tunnels; joints; fractures; shear zones; excavations; site analysis; statistical methods; excavations; site exploration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018945 81-08120

In-situ stress determination based on fracture responses associated with coring operations
Gangarao, H. V. S.; Chang, P.; Advani, S. H.
20th U.S. symposium on rock mechanics, Austin, TX, United States, June 4-6, 1979
Symp. Rock Mech., Proc. 20, 683-690p., 1979
CODEN: PSRMA6 ISSN: 0586-3031 18 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., tables, plate
Descriptors: rock mechanics; experimental studies; finite element analysis; cores; stress; fractures; statistical methods; Devonian; paleozoic; shale; clastic rocks; methods; mathematical models; models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018930 81-08082

Comparison of finite element predictions of horizontal elastic rock movements to field measurements in an excavation in New York City

Ciancia, A. J.; Millet, R. A.; Dorrier, R. C.
Woodward-Clyde Consult., USA
20th U.S. symposium on rock mechanics, Austin, TX, United States, June 4-6, 1979
Symp. Rock Mech., Proc. 20, 555-564p., 1979
CODEN: PSRMA6 ISSN: 0586-3031 13 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus., tables, geol. sketch map, geol. sects.
Latitude: N403000 Longitude: W0735500; W0735500
Descriptors: "rock mechanics; "New York; materials; properties; engineering geology; finite element analysis; Fordham Gneiss; mathematical models; statistical methods; excavations; granite gneiss; gneisses; New York City; United States; Queens; stress
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018929 81-08238

Elastic-plastic and elastic-brittle finite element analysis of cave zone growth in response to longwall fall advance

Perisenu, W. G.
Univ. Utah, Salt Lake City, UT, USA
20th U.S. symposium on rock mechanics, Austin, TX, United States, June 4-6, 1979
Symp. Rock Mech., Proc. 20, 541-553p., 1979
CODEN: PSRMA6 ISSN: 0586-3031 28 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus., sects., strat. cols., sketch map
Descriptors: "rock mechanics; "Utah; materials; properties; engineering geology; finite element analysis; sandstone; mathematical models; models; statistical methods; longwall mining; United States; Sunnyside Mine; pressure; elasticity; strain; deformation; clastic rocks; coal; organic residues
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018927 81-08096

A parametric study of a discontinuous rock medium and its effects on the design of an underground structural support using a two-dimensional finite element technique

Dendrou, B.; Van Dillen, D.; Sennett, R. E.
Aghabian Assoc.
20th U.S. symposium on rock mechanics, Austin, TX, United States, June 4-6, 1979
Symp. Rock Mech., Proc. 20, 525-533p., 1979
CODEN: PSRMA6 ISSN: 0586-3031 10 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus., tables
Descriptors: "rock mechanics; "District of Columbia; materials; properties; engineering geology; finite element analysis; mathematical models; models; roof support; statistical methods; excavations; stress; elasticity; strength; tunnels; two-dimensional models; Dupont Circle Station; subways; gneiss; gneisses; discontinuities; joints; fractures
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018903 81-08120

Probability of kinematic instability in rock slopes: a numerical approach

Glynn, E. F.; Einstein, H. H.
Univ. Pa., Philadelphia, PA, USA; Mass. Inst. Technol., USA
20th U.S. symposium on rock mechanics, Austin, TX, United States, June 4-6, 1979
Symp. Rock Mech., Proc. 20, 317-325p., 1979
CODEN: PSRMA6 ISSN: 0586-3031 6 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus.
Descriptors: "rock mechanics; "slope stability; theoretical studies; mathematical methods; numerical analysis; errors; joints; fractures; kinetics; kinematics; slopes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018897 81-08277

Statistics of structural responses to seismic waves filtered through rock and soil formations

Sprnos, P. I. D.
Univ. Tex. Austin, Austin, TX, USA
20th U.S. symposium on rock mechanics, Austin, TX, United States, June 4-6, 1979
Sym. Rock Mech., Proc. 20, 273-278p., 1979
CODEN: PSRMA6 ISSN: 0586-3031 11 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., sect.

Descriptors: *rock mechanics; *seismology; theoretical studies; elastic waves; mathematical models; statistical methods; earthquakes; probability; damping; frequency
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018896 81-08320

Numerical analysis of rock structures considering material nonlinearities

Yufin, S. A.
20th U.S. symposium on rock mechanics, Austin, TX, United States, June 4-6, 1979
Sym. Rock Mech., Proc. 20, 265-272p., 1979
CODEN: PSRMA6 ISSN: 0586-3031 14 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., sects., table

Descriptors: *rock mechanics; *USSR; automatic data processing; theoretical studies; engineering geology; mathematical methods; numerical analysis; underground installations; finite element analysis; statistical methods; joints; fractures; computer programs; Inguiri hydroelectric plant; Caucasus; Georgia; United States; dolostone; carbonate rocks; shale; clastic rocks; sandstone; slate; slates; sedimentary rocks
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018895 81-08100

On the inference of crack statistics from observations of an outcropping

Dienes, J. K.
Los Alamos Sci. Lab., Los Alamos, NM, USA; Univ. Calif., USA
20th U.S. symposium on rock mechanics, Austin, TX, United States, June 4-6, 1979

States, June 4-6, 1979
Sym. Rock Mech., Proc. 20, 259-263p., 1979
CODEN: PSRMA6 ISSN: 0586-3031 7 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.

Descriptors: *rock mechanics; theoretical studies; mathematical methods; cracks; Hankel functions; distribution; outcrops
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018894 81-08300

A two-dimensional finite element technique for modeling rock/structure interaction of a lined underground opening

Van Dillen, D.; Fellner, R. W.; Dendrou, B.
Agablian Assoc., El Segundo, CA, USA
20th U.S. symposium on rock mechanics, Austin, TX, United States, June 4-6, 1979
Sym. Rock Mech., Proc. 20, 251-258p., 1979
CODEN: PSRMA6 ISSN: 0586-3031
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., block diag.

Descriptors: *rock mechanics; theoretical studies; mathematical models; excavations; finite element analysis; statistical methods; two-dimensional models; layered materials
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018021 81-08237

Parametric analysis of axially loaded concrete piles in non-homogeneous cohesive and cohesionless soil deposits

Parikh, S. K.; Pal, S. C.

Numerical methods in geomechanics; Vol. 4, Additional contributions

Witte, W.(EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1531-1538 p., 1980

ISBN: 9061910447 6 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *foundations; *deformation; *soil mechanics; piles; elasticity; materials; properties; stress; loading; cohesionless materials; shear stress; heterogeneity; failure; finite element analysis; statistical methods; penetration; cohesive materials; materials, properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018018 81-08085

Prediction of supported excavation movements under marginal stability conditions in clay

Clough, G. W.; Hansen, L. A.; Mana, A. I.

Stanford Univ., Stanford, CA, USA; Ariz. State Univ., USA

Numerical methods in geomechanics; Vol. 4, Additional contributions

Witte, W.(EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1485-1502 p., 1980

ISBN: 9061910447 21 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: *foundations; *soil mechanics; construction; deformation; excavations; loading; stress; stiff clay; finite element analysis; statistical methods; numerical analysis; strain; shear strength; anisotropic materials; clays

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018017 81-08233

Application of numerical methods to design and construction control of soil structures in Japan

Drava, Y.

Numerical methods in geomechanics; Vol. 4, Additional contributions

Witte, W.(EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1473-1483 p., 1980

ISBN: 9061910447 6 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Latitude: N300000; N450000 Longitude: E1470000; E1290000
Descriptors: *Japan; *soil mechanics; engineering geology; deformation; loading; foundations; Asia; embankments; structures; stress; numerical analysis; finite element analysis; statistical methods; settlement; failure; excavations

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018016 81 08252

Nonlinear effects in dynamic soil structure interaction

Kneset, J. M.; Scaletti, H.
Univ. Texas, Austin, TX, USA

Numerical methods in geomechanics; Vol. 4, Additional

contributions

Wittke, W. (EDITOR)
Third international conference on numerical methods in
geomechanics, Aachen, Germany, Federal Republic of, April
2-6, 1979

Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1457-1470
P., 1980

ISBN 9061910447 13 REFS.

Subfile B

Country of Pub.: International

Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.

Descriptors: soil mechanics; foundations; experimental
studies; structures; elastic materials; stress; finite
element analysis; statistical methods; mathematical models;
models; numerical analysis; strain; cyclic loading; shear
modulus; elastic constants; Poisson's ratio; acceleration;
seismic methods; geophysical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018013 81-08081

Evaluation of the extent of movement of a sliding mass

Choudhury, R. N.

Numerical methods in geomechanics; Vol. 4, Additional

contributions

Wittke, W. (EDITOR)
Third international conference on numerical methods in
geomechanics, Aachen, Germany, Federal Republic of, April
2-6, 1979

Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1433-1440
P., 1980

ISBN: 9061910447 6 REFS.

Subfile: B

Country of Pub.: International

Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English
Descriptors: slope stability; soil mechanics;
excavations; site exploration; circular failure; testing;
mass movements; stress; strain; deformation; numerical
analysis; finite element analysis; statistical methods;
pore pressure; loading

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018014 81 08060

Load deformation behaviour of foundations near slopes

Bauer, G. F.; Salvendy, A. P. S.; Nicholas, T.
Carleton Univ., Civ. Eng. Dep., Ottawa, Ont., CAN

Numerical methods in geomechanics; Vol. 4, Additional

contributions

Wittke, W. (EDITOR)
Third international conference on numerical methods in
geomechanics, Aachen, Germany, Federal Republic of, April
2-6, 1979

Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1441-1447
P., 1980

ISBN 9061910447 11 REFS.

Subfile B

Country of Pub.: International

Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus., table

Descriptors: soil mechanics; foundations; slope stability
studies; granular materials; construction; experimental
bearing capacity; materials; properties; footings; settlement;
analysis; statistical methods; numerical analysis; triaxial
tests; stress; strain; failure; deformation; loading

1018010 81-0805G

Stability and settlement of embankments on soft Bangkok clay
Balasubramanian, A. S.; Sivandran, C.; Ho, Y. M.

Numerical methods in geomechanics; Vol. 4, Additional contributions

Wittke, W. (EDITOR)
Third International conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979
Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1373-1411
p., 1980

ISBN 9061910447 54 REFS.

Subfile B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus., tables

Descriptors: *slope stability; *soil mechanics; embankments; theoretical studies; circular failure; clays; triaxial tests; deformation; compressibility; finite element analysis; statistical methods; stress; strain; soft clays; plasticity; numerical analysis; shear strength; settlement; consolidation; statistical analysis; Thailand; Asia

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018008 81-08284

A finite element simulation on the failure of brittle rocks
Szu-Ching Wang; Jun Liu

Numerical methods in geomechanics; Vol. 4, Additional contributions

Wittke, W. (EDITOR)
Third International conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979
Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1357-1362
p., 1980

ISBN 9061910447 10 REFS.

Subfile B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus.

Descriptors: *rock mechanics; *deformation; failure; theoretical studies; microfractures; fracture strength; stress; strain; loading; numerical analysis; finite element analysis; statistical methods; uniaxial tests
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018005 81-08136

A comparison of some constitutive laws for soils under radially symmetric loading and unloading
Guderus, G.

Numerical methods in geomechanics; Vol. 4, Additional contributions

Wittke, W. (EDITOR)
Third International conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979
Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1309-1323
p., 1980

ISBN 9061910447 11 REFS.

Subfile B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus.

Descriptors: *soil mechanics; deformation; consolidation; stress; strain; elasticity; loading; numerical analysis; triaxial tests; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018004 81-08318

Primary and secondary plane strain consolidation problems by the finite element method

Yuan, C. H.; Mao, Y.

Numerical methods in geomechanics; Vol. 4, Additional contributions

Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1293-1306 p., 1980

ISBN: 9061910447 11 REFS.

Subfile B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

Descriptors: *soil mechanics; *deformation; *settlement; theoretical studies; consolidation; compressibility; finite element analysis; statistical methods; pore pressure; elasticity; stress; strain; numerical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018003 81-08079

On the numerical solution of certain initial value problems

Chung, Y. K.; Tham, L. G.

Numerical methods in geomechanics; Vol. 4, Additional contributions

Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1283-1292 p., 1980

ISBN: 9061910447 11 REFS.

Subfile B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

Descriptors: *rock mechanics; *theoretical studies; finite element analysis; statistical methods; numerical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018002 81-08319

On the application of an interpolation matrix for

computation of stresses in finite elements

Yuanxun Fan; Stijling Wang

Numerical methods in geomechanics; Vol. 4, Additional contributions

Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1273-1280 p., 1980

ISBN: 9061910447 3 REFS.

Subfile B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

Descriptors: *rock mechanics; *theoretical studies; stress; finite element analysis; statistical methods; numerical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018000 81-08258

Analysis of consolidation of viscoelastic soils

Sandhu, R. S.; Liu, H.

Ohio State Univ., Columbus, Ohio, USA; Goodyear Res., USA

Numerical methods in geomechanics; Vol. 4, Additional contributions

Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Int. Conf. Numer. Methods Geomech., [Proc.] 3, 1255-1263 p., 1980

ISBN: 9061910447 29 REFS.

Subfile B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

Descriptors: *soil mechanics; *deformation; *settlement; field studies; consolidation; viscoelasticity; finite element analysis; statistical methods; pore pressure; applications; numerical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1017999 81-08030

Numerical methods in geomechanics: Vol. 4. Additional contributions

With: W. (EDITOR)
Third international conference on numerical methods in geomechanics. Aachen, Germany. Federal Republic of, April 2-6, 1979

Int. Conf Numer. Methods Geomech., [Proc.] 3. 295p., 1980

ISBN: 9061910447

Subfile: B

Country of Publ.: International

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: MONOGRAPHIC

Language: English

Note: Individual papers are cited separately. (illus.)

Descriptors: *symposia; *rock mechanics; *soil mechanics; engineering geology; settlement; deformation; consolidation; elastic materials; numerical analysis; statistical analysis; slope stability; foundations; loading; failure; mathematical models; models; embankments; dams; excavations

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1017575 81-08218

The mechanisms of ground surface subsidence above compacting multiphase reservoirs and their analysis by the finite element method

Morgan, K.; Lewis, R. W.; White, I. R.

Appl. Math. Model. 4: 3. 217-224p., 1980

CODEN: AMMDL ISSN 0307-904X 26 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

(illus.)

Latitude: N510000 Longitude: E0080000; W0020000
Descriptors: *engineering geology; *North Sea; petroleum engineering; models; mathematical methods; stress; subsidence; finite element analysis; statistical methods; Atlantic Ocean; Forties Field; oil and gas fields

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1016996 81-03776

O metodo de permeabilidade variavel na analise por elementos finitos dos escoamentos em meios porosos
The variable permeability method in finite element analysis of seepage in porous media

Correia, R.

Geotechnia (Soc. Port. Geotecnica) 27. 95 107p., 1979

CODEN: GEOTDM 7 REFS.

Subfile: B
Country of Publ.: Portugal
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Language: Portuguese Summary Language: English (illus.)

Descriptors: *engineering geology; *seepage; *mathematical models; permeability; drainage; models; finite element analysis; statistical methods; porous materials

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1016811 81-03863

Finite element simulation of Wilmington oil field subsidence; 11. Nonlinear modelling

Kosloff, D.; Scott, R. F.; Scranton, J.

Calif. Inst. Technol., Dep. Eng., Pasadena, Calif., USA;

Long Beach City Dep. Oil Prop., USA

Tectonophysics 70: 1-2. 159-183p., 1980

CODEN: TCTOAM ISSN: 0040-1951

Subfile: B

Country of Publ.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

Latitude: N333500 Longitude: W1180000; W1183000

Descriptors: *California; *engineering geology; *land subsidence; Los Angeles County; United States; Southern California; Wilmington oil field; Long Beach; mathematical models; models; elasticity; plasticity; nonlinear models; theoretical studies; finite element analysis; statistical methods; automatic data processing; rheology

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1016488 81-03705

Probabilistic partial safety factor design techniques for undrained soil stability problems

D'Andrea, R. A.

Cornell Univ., Ithaca, N.Y., USA

207p., 1980

Subfile: B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Language: English

Availability: Univ. Microfilms

Descriptors: *soil mechanics; *theoretical studies; stability; failure; probability

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1905

DIALOG File89: GEOREF - 81-87/Sep (Copr. American Geological Institute) (Item 358 of 1356) User 5208 2sep82

11-14p..

12.

Neft' Gaz (Izv. Vyssh. Uchebn. Zaved.)

1979 CODEN IVUNA2 ISSN: 0445-0109 5 REFS.

Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Russian
illus.: tables
Descriptors: *sedimentary rocks; *rock mechanics;
properties: materials; physical properties; mechanical
properties; strength; classification; statistical analysis;
materials, properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1015337 81-04790

Metodika vydeleniya produktivnykh kolektorov i nekollektorov dlya mestozhdeniy razrabatyvayemykh s neuklonturnym zavodneniyem
Recognizing productive reservoirs and non-reservoirs for fields developed with contour flooding
Gattenberger, Y. P.; Lutkov, V. A. 1980
Geol. Nefti Gaza 3: 28-32p.. 1980
CODEN: GENGAS ISSN: 0016-7894 4 REFS.

Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Russian
illus.: table
Descriptors: *engineering geology; *petroleum; petroleum
engineering; exploration; secondary recovery;
possibilities; reservoir rocks; statistical analysis
Section Headings: 29 (ECONOMIC GEOLOGY, ENERGY SOURCES)

1016010 81-03715

Engineering soils mapping from multispectral remote sensing data using computer-assisted analysis

Woodring, S. M.
Purdue Univ., West Lafayette, Indiana, USA
Unknown: 1973
Subfile: B
Degree Level: Master's
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Latitude: N390000 Longitude: W0950000; W0953000
Descriptors: *Kansas; *soils; *automatic data processing;
*soil mechanics; geophysical surveys; surveys; engineering
geology; materials; properties; remote sensing; soil maps;
Jefferson County; United States; classification;
applications: maps; multispectral analysis; methods;
programs; cluster analysis; statistical
statistical analysis; cartography
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1015925 81-03730

Probabilistic seismic stability analysis: a case study

Athanasios Grivas, D.
Peisselae Polytech. Inst., Dep. Civ. Eng., Troy, N.Y., USA
Can. Geotech. J. 17 3: 352-360p.. 1980
CODEN: CGJDAH ISSN: 0008 3674 11 REFS.
Subfile: B
Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French

illus.: tables, sect
Latitude: N420000 Longitude: W0730000; W0730000
Descriptors: *New York; *automatic data processing;
engineering geology; slope stability; earthquakes; United
States; Slingslands; failure probability; probability;
epicenters; models; seismic risk; 1568-1975; magnitude;
Lowland; seismicity; mathematical models; errors; effects;
static loading; geologic hazards; Monte Carlo analysis; Albany
landslides; geologic hazards; Middle Ordovician; Ordovician
County; Snake Hill formation; Middle Ordovician; Pleistocene;
case studies; Albany clay; Albany Lake; Pleistocene;
Quaternary; Cenozoic; Appalachian Plateau
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1015666 81-03720

K voprosu klassifikatsii gornykh porod na osnove fiziko-mekhanicheskikh svoystv
The classification of rocks using physico-mechanical properties
Ananyev, F. Y.; Agayev, S. G.

1015305 81-03691

Rock physics characterization of Conway Granite from a DOE borehole, Conway, New Hampshire

Warren, N.
Univ. Calif., Inst. Geophys. and Planet. Sci., Los Angeles, Calif., USA
Los Alamos Sci. Lab., [Rep.] LA-8102 MS, 51p., 1979
CODEN: LASLCA
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; REPORT; Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: NIS, Springfield, Va., United States
illus.: tables
Descriptors: New Hampshire; rock mechanics; igneous rocks; granite; composition; materials; properties; granites; Plutonic-Volcanic Series; Conway Granite; White Mountain granite-granodiorite family; United States; boreholes; lamprophyre and carbonate family; ultrastructure; lamprophyre; microcracks; elastic properties; dikes; intrusions; size; petrology; materials; properties; statistical analysis; mineral composition; petrography; Osine Mountains
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1014728 81-02436

Flow law of 'wet' quartzite in the alpha-quartz field

Koch, P. S.; Christie, J. M.; George, R. P.
Univ. Calif., Dep. Earth and Space Sci., Los Angeles, Calif., USA; Exxon Prod. Res. Co., USA
American Geophysical Union, 1980 Spring annual meeting, Toronto, Ont., Canada, May 22-27, 1980
Eos (Am. Geophys. Union, Trans.) 61: 17, 376p., 1980
CODEN: EOSTAU ISSN: 0096-3941
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION; Bibliographic Level: ANALYTIC
Languages: English
Descriptors: deformation; rock mechanics; experimental studies; flow; quartzite; metamorphic rocks; hydration; temperature; strain; stress; dehydration; theoretical studies; least-squares analysis; statistical methods; quartz; silica minerals; framework silicates; silicates; alpha quartz
Section Headings: 17 (GEOPHYSICS, GENERAL)

1014719 81-02459

Constitutive model for the low temperature creep of polycrystalline salt

Munson, D. E.
Sandia Lab., Albuquerque, N.M., USA
American Geophysical Union, 1980 spring annual meeting, Toronto, Ont., Canada, May 22-27, 1980
Eos (Am. Geophys. Union, Trans.) 61: 17, 375p., 1980
CODEN: EOSTAU ISSN: 0096-3941
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION; Bibliographic Level: ANALYTIC
Languages: English
Descriptors: deformation; rock mechanics; salt tectonics; theoretical studies; mechanism; creep; salt; halite; halides; temperature; low temperature; mathematical models; models; polycrystalline materials; waste disposal; radioactive waste; stress; strain; finite element analysis; statistical methods
Section Headings: 17 (GEOPHYSICS, GENERAL)

1013800 81-03813

Rock mechanics as applied to mining

Goud, T. N.
Geophys. Res. Bull. (Hyderabad) 17: 4, 147-161p., 1979
CODEN: GRBUDH ISSN: 0378-6307 16 REFS.
Subfile: B

Country of Publ.: India
Doc Type: SERIAL; Bibliographic Level: ANALYTIC
Languages: English
illus.: table, photos., diagrs.
Latitude: N130000; N130000 Longitude: E0773000; E0773000
Descriptors: India; rock mechanics; engineering geology; materials; properties; physical properties; mining geology; laboratory studies; Kolar Gold Fields; Asia; triaxial tests; finite element analysis; statistical methods; stress meters; extensometers; rock bursts; failure; materials; properties; compressive strength; dilatancy; Young's modulus; elastic constants; strain; quantitative methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1013750 81-03806

An approach to estimation of leakage from a karstic limestone reservoir
Gangonadhiyav, S.

Symposium; Engineering geological problems in hydrotechnical construction--Problemes de geologie del'ingenieur dans la construction hydrotechnique

Wolters, R. (EDITOR)

Symposium; Engineering geological problems in hydrotechnical construction, Tiflis, Union of Soviet Socialist Republics, Sept. 12-19, 1979

Int. Assoc. Eng. Geol., Bull., 20, 189-191p., 1979

CODEN: BIEGB6 ISSN: 0074-1612

Subfile: 8

Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French
Descriptors: *India; *rock mechanics; *ground water; engineering geology; methods; surveys; reservoirs; statistical methods; Asia; Kopili Reservoir; Kopili Dam; seepage; karst; limestone; carbonate rocks; mathematical methods; permeability; tritium; tracers; water balance; hydrogeology

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1013745 81-03807

Probabilistic approach to the study of jointing in the rock masses
Gaziev, E. G.; Tiden, E. N.

Symposium; Engineering geological problems in hydrotechnical construction--Problemes de geologie del'ingenieur dans la construction hydrotechnique

Wolters, R. (EDITOR)

Symposium; Engineering geological problems in hydrotechnical construction, Tiflis, Union of Soviet Socialist Republics, Sept. 12-19, 1979

Int. Assoc. Eng. Geol., Bull., 20, 178-181p., 1979

CODEN: BIEGB6 ISSN: 0074-1612 8 REFS.

Subfile: 8

Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French
Descriptors: *rock mechanics; *fractures; *failure; style; mathematical methods; joints; methods; statistical analysis; probabilistic method; Gaziev, E. G.
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1013737 81-03982

Deformational stress state of mountain slopes and its change when creating huge reservoirs
Stepanov, V. V.

Symposium; Engineering geological problems in hydrotechnical construction--Problemes de geologie del'ingenieur dans la construction hydrotechnique

Wolters, R. (EDITOR)

Symposium; Engineering geological problems in hydrotechnical construction, Tiflis, Union of Soviet Socialist Republics, Sept. 12-19, 1979

Int. Assoc. Eng. Geol., Bull., 20, 147-149p., 1979

CODEN: BIEGB6 ISSN: 0074-1612 6 REFS

Subfile: 8

Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French
Descriptors: *USSR; *rock mechanics; engineering geology; slope stability; reservoirs; applications; Naryn River; Fochtouk Reservoir; deformation; rockslides; mathematical methods; elastic theory; finite element analysis; statistical methods; mass movements; embankments; Kirghizia
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1013726 81-03922

Seismotectonics and dam construction; general report
Oborn, L. E.

Symposium; Engineering geological problems in hydrotechnical construction--Problemes de geologie del'ingenieur dans la construction hydrotechnique
Wolters, R. (EDITOR)
Symposium; Engineering geological problems in hydrotechnical construction, Tiflis, Union of Soviet Socialist Republics, Sept. 12-19, 1979
Int. Assoc. Eng. Geol., Bull., 20, 94-105p., 1979
CODEN: BIEG86 ISSN: 0074-1612 100 REFS.
Subfile B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: geol. sect., block diags.
Descriptors: *dams; geologic hazards; *earthquakes; *rock mechanics; *reservoirs; *soil mechanics; *seismology; design; applications; seismic risk; effects; foundations; genesis; seismotectonics; seismicity; faults; fault zones; folds; review; statistical methods; ground motion; site exploration; prediction
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1013710 81-03736

Geomechanical characteristics of a granite body at a dam site
Barrocu, G.; Manca, P. P.

Symposium; Engineering geological problems in hydrotechnical construction--Problemes de geologie del'ingenieur dans la construction hydrotechnique
Wolters, R. (EDITOR)
Symposium; Engineering geological problems in hydrotechnical construction, Tiflis, Union of Soviet Socialist Republics, Sept. 12-19, 1979
Int. Assoc. Eng. Geol., Bull., 20, 32-35p., 1979
CODEN: BIEG86 ISSN: 0074-1612 7 REFS.
Subfile B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
Block diag., geol., sect., tables
Latitude: N404000 Longitude: E0082000
Descriptors: *Sardinia; *rock mechanics; engineering geology; materials; properties; dams; granite; Italy; Europe; granite-granodiorite family; materials; properties; factor analysis; statistical methods; fractures; permeability; Rio Pagghiolu; Tempio Pausania; Sassari; models; deformation; tectonics; dikes; intrusions
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1013702 81-03924

Engineering geological problems related to the study, design and construction of dam foundations; general report
Oliveira, R.

Symposium; Engineering geological problems in hydrotechnical construction--Problemes de geologie del'ingenieur dans la construction hydrotechnique
Wolters, R. (EDITOR)
Symposium; Engineering geological problems in hydrotechnical construction, Tiflis, Union of Soviet Socialist Republics, Sept. 12-19, 1979
Int. Assoc. Eng. Geol., Bull., 20, 4-7p., 1979
CODEN: BIEG86 ISSN: 0074-1612 9 REFS.
Subfile B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English Summary Languages: English
table
Descriptors: *dams; foundations; design; statistical analysis; engineering geology; methods; rock mechanics; review
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1012943 81-03786

Groundwater and drawdown in a large earth excavation

Denidun, F.; Lee, C. F.
Ont. Hydro. Geotech. Eng. Dep., Toronto, Ont., CAN
Can. Geotech. J. 17, 2, 185-202p., 1980
CODEN CGJDAH ISSN: 0008-3674 18 REFS.

Subfile: B

Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
Note: Presented at the 31st Can. Geotech. Conf., Winnipeg,
Alberta, Oct. 18-20, 1978. illus., geol. sect., block diag.,
table

Latitude: N433000; Longitude: W0790000; W0790000
Descriptors: Ontario; ground water; hydrology;
engineering geology; surveys; foundations; Canada;
excavations; drawdown; soils; slope stability; drawdown
response; levels; Bowmanville; nuclear power plant; water
table; till; clastic sediments; Darlington; shorelines;
Lake Ontario; Great Lakes; water levels; seepage; sand;
finite element analysis; statistical methods; aquifers
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1012919 81-03869

**Groundwater regime associated with slope stability in
Champlain clay deposits**

Lafleur, J.; Lefebvre, G.
Univ. Sherbrooke, Dep. Civ. Eng., Sherbrooke, Que., CAN
Can. Geotech. J. 17, 1, 44-53p., 1980
CODEN CGJDAH ISSN: 0008-3674 9 REFS.

Subfile: B

Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus., geol. sect
Latitude: N450000; Longitude: W0700000; W0760000
Descriptors: Quebec; soil mechanics; engineering geology
; case studies; slope stability; clays; Canada;
Champlain Clay; ground water; finite element analysis;
statistical methods; permeability; hydraulic head; flow
regime; Mull; Geany Creek; Saint Urbain; Saint Ambrose;
Nicolet; Nicolet River; controls
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1012917 81-03993

Field measurements in two tunnels in Edmonton, Alberta

Thomson, S.; El-Nahhas, F.
Univ. Alberta, Dep. Civ. Eng., Edmonton, Alberta, CAN
Can. Geotech. J. 17, 1, 20-33p., 1980
CODEN CGJDAH ISSN: 0008-3674 18 REFS.

Subfile: B

Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus., tables, geol. sects.
Latitude: N535000; Longitude: W1135000; W1135000
Descriptors: Alberta; soil mechanics; rock mechanics;
engineering geology; deformation; tunnels; till; shale;
Canada; Whitemud Creek tunnel; Edmonton; clastic rocks;
Cretaceous; clastic sediments; Horse Canyon Formation; Pleistocene;
Mesozoic; sewers; physical properties; piezometers;
Quaternary; Cenozoic; unconsolidated materials; vertical
movements; finite element analysis; statistical methods;
ground motion
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1012900 81-02394

**Spectral reflectance and discrimination of plutonic rocks in
the 0.45- to 2.45- μ m region**

Blom, R. G.; Abrams, M. J.; Adams, H. G.
Calif. State Univ., Dep. Geosci., Northridge, Calif., USA;
J. Geophys. Res. 85, B5, 2638-2648p., 1980
CODEN JGRE22 ISSN: 0148-0227 21 REFS.

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: igneous rocks; rock mechanics; remote
sensing; plutonic rocks; properties; materials;
interpretation; infrared spectra; reflectance; spectral
reflectance; field studies; discriminant analysis;
statistical methods; gabbro; gabbro family; granitic
composition; ultramafic composition; classification;
mineral composition; materials, properties; infrared methods
; geophysical methods
Section Headings: 17 (GEOPHYSICS, GENERAL)

1012891 81-02432

In-plane propagation of shear microcracks in brittle rocks under triaxial compression

Jannach, W.; Guex, L. H.
J. Geophys. Res. 85, B5, 2543-2553p., 1980
CODEN JGREA2 ISSN: 0148-0227 34 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: rock mechanics; deformation; fractures; theoretical studies; genesis; shear; Westerly Granite; mathematical models; models; cracks; microcracks; propagation; brittle materials; triaxial tests; compression; finite element analysis; statistical methods; mechanics; separation; bubbles; granite; granite-granodiorite family; failure

Section Headings: 17 (GEOPHYSICS, GENERAL)

1012849 81-03731

The evaluation of seismic risk in northern Canada and applications to pipeline response

Atkinson, G.; Novak, M.; Davenport, A. G.
Univ. West. Ont., Fac. Eng. Sci., London, Ont., CAN
American Geophysical Union, 1980 spring annual meeting, Toronto, Ont., Canada, May 22-27, 1980
EOS (Am. Geophys. Union, Trans.) 61: 17, 306p., 1980
CODEN: EOSIAJ ISSN: 0096-3941

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

Latitude: N650000; Longitude: W0600000; W1400000
Descriptors: Canada; seismology; engineering geology; seismicity; earthquakes; seismic risk; geologic hazards; ground motion; Arctic region; pipelines; design; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1011974 80-51169

System interaction of expansive soils with light foundations

Mathewson, C. C.; Dobson, B. M.; Dyke, L. D.; Lytton, R. L.
Tex. A&M Univ., Dep. Geol., College Station, Tex., USA;
McClelland Eng., USA

Assoc. Eng. Geol., Bull. 17: 2, 55-94p., 1980

CODEN ENGEB9 ISSN: 0004-5691 10 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., tables, sketch maps

Latitude: N290000; N314500 Longitude: W0940000; W0990000
Descriptors: Texas; soil mechanics; engineering geology; case studies; foundations; expansive materials; Bexar County; McLennan County; Brazos County; Jefferson County; United States; geologic hazards; San Antonio; College Station; Waco; Beaumont; Gulf Coastal Plain; North America; statistical analysis; damage; site exploration; creep

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1011638 80-51059

Rock load on the support structures of two large underground hydroelectric power stations

Dolcetta, M.; Capozza, F.; Martinetti, S.

Berichte: Internationales Symposium fuer Untertagebau--Compt-e-rendus: Symposium international de la construction de cavites souterraines--Proceedings: International symposium on underground openings

Grob, H.(EDITOR); Kovari, K.(EDITOR)

Internationales Symposium fuer Untertagebau--Symposium international de la construction de cavites souterraines--International symposium on underground openings, Lucerne, Switzerland, Sept. 11-14, 1972

Publ.: A. A. Balkema/Schweiz. Ges. Boden-felsmech.

405-446p., 1979

Ed. 2 55 REFS.

Subfile: B

Country of Publ.: Switzerland

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English Summary Languages: German

illus., tables

Latitude: N363000; N473000 Longitude: E0190000; E0063000
Descriptors: rock mechanics; Italy; excavations; engineering geology; rock pressure; underground installations; underground space; Europe; Lake Delio; San Fiorano; stress; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1011632 80-51250

Analyse du comportement elastoplastique des cavites de stockage de gaz en couche de sel par la methode des elements finis
Analysis of the elastoplastic behavior of gas storage cavities in salt deposits by finite-element method
Stremsdoerfer, P. M.

Berichte; Internationales Symposium fuer Untertagbau--Compt-e-rendus; Symposium international de la construction de cavites souterraines--Proceedings; International symposium on underground openings

Grob, H. (EDITOR); Kovari, K. (EDITOR)
Internationales Symposium fuer Untertagbau--Symposium international de la construction de cavites souterraines--International symposium on underground openings.
Lucerne, Switzerland, Sept. 11-14, 1972.
Publ. A. A. BalkemaSchweiz. Ges. Boden-felsmech.
336-350p. 1979

Ed. 2 7 REFS
Subfile B

Country of Publ.: Switzerland
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: French
Summary Languages: English

illus., sketch maps
Descriptors: +france; rock mechanics; engineering geology; materials; properties; underground installations; finite element analysis; Europe; Lyon; Tiersanne; natural gas; storage; statistical methods; stress; salt
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1011631 80-51249

On the application of a numerical visco-plastic model to rock mechanics problems

Stacho, K. G.; Zienkiewicz, O. C.; Corneau, I. C.

Berichte; Internationales Symposium fuer Untertagbau--Compt-e-rendus; Symposium international de la construction de cavites souterraines--Proceedings; International symposium on underground openings

Grob, H. (EDITOR); Kovari, K. (EDITOR)
Internationales Symposium fuer Untertagbau--Symposium international de la construction de cavites souterraines--International symposium on underground openings.
Lucerne, Switzerland, Sept. 11-14, 1972.
Publ. A. A. BalkemaSchweiz. Ges. Boden-felsmech.
327-330p. 1979

Ed. 2 9 REFS
Subfile B

Country of Publ.: Switzerland
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Summary Languages: German

illus.

Descriptors: +rock mechanics; theoretical studies; viscoplasticity; finite element analysis; statistical methods; stress; mathematical models; models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1011627 80-51001

Milchbuck-Tunnel; Dimensionierung der Tunnelauskleidung
Milchbuck Tunnel; design of the tunnel linings

Bebi, P.
Elektro-Watt Ingenieurunternehm. AG, Zurich, CHE

Berichte; Internationales Symposium fuer Untertagbau--Compt-e-rendus; Symposium international de la construction de cavites souterraines--Proceedings; International symposium on underground openings

Grob, H. (EDITOR); Kovari, K. (EDITOR)
Internationales Symposium fuer Untertagbau--Symposium international de la construction de cavites souterraines--International symposium on underground openings.
Lucerne, Switzerland, Sept. 11-14, 1972.
Publ. A. A. BalkemaSchweiz. Ges. Boden-felsmech.
279-289p. 1979

Ed. 2 9 REFS
Subfile B

Country of Publ.: Switzerland
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: German
Summary Languages: French

illus., sect., sketch map
Latitude: N471000; N474000 Longitude: E0080000; E0082000
Descriptors: +Switzerland; +soil mechanics; +rock mechanics; engineering geology; theoretical studies; +rock mechanics; finite element analysis; design; linings; Milchbuck Tunnel; Europe; Zurich; stress; sandstone; clastic rocks; marl; carbonate rocks; moraines; molasse; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1011625 80-50996

Analysis of stress around underground openings reinforced with rock bolts

Barla, G.; Cravero, M.

Berichte: Internationales Symposium fuer Untertagbau--Compt-e-rendus; Symposium international de la construction de cavit-es souterraines--Proceedings; International symposium on underground openings

Grub, H. (EDITOR); Kovari, K. (EDITOR)
Internationales Symposium fuer Untertagbau--Symposium international de la construction de cavit-es souterraines--International symposium on underground openings, Lucerne, Switzerland, Sept. 11-14, 1972
Publ.: A. A. Balkema/Schweiz. Ges. Boden-Felsmech. 252-269p., 1979
Ed. 2 9 REFS.

Subfile: B
Country of Publ.: Switzerland
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus., tables

Descriptors: rock mechanics; tunnels; theoretical studies; stress; finite element analysis; statistical methods; rock bolts; stability; mathematical models;

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1011613 80-50990

Influence de saignees sur la repartition des contraintes autour d'une galerie
Influence of radial slits on the stress distribution around a tunnel

Aufaure, M.; Bozetto, P.; Duffaut, P.

Berichte: Internationales Symposium fuer Untertagbau--Compt-e-rendus; Symposium international de la construction de cavit-es souterraines--Proceedings; International symposium on underground openings

Grub, H. (EDITOR); Kovari, K. (EDITOR)
Internationales Symposium fuer Untertagbau--Symposium international de la construction de cavit-es souterraines--International symposium on underground openings, Lucerne, Switzerland, Sept. 11-14, 1972
Publ.: A. A. Balkema/Schweiz. Ges. Boden-Felsmech. 120-127p., 1979
Ed. 2 7 REFS.

Subfile: B
Country of Publ.: Switzerland
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: French Summary Languages: English
illus.

Descriptors: tunnels; rock mechanics; theoretical studies; stress; finite element analysis; statistical methods; granite-granodiorite family; mathematical models;
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1010256 80-51186

An experimental programme to define the yield function for sand

Moroto, N.
Soils Found. (Tokyo) 20: 1, 91-92p., 1980
CODEN: SOIFBE ISSN: 0038-0806 2 REFS.
Subfile: B

Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: deformations; soil mechanics; experimental studies; foundations; yield strength; sand; yield function; clastic sediments; compression; triaxial tests; finite element analysis; statistical methods; analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1010255 80-51036

Parametric elastoplastic analysis of clay fills

Cavounidis, S.
Soils Found. (Tokyo) 20: 1, 83-89p., 1980
CODEN: SOIFBE ISSN: 0038-0806 8 REFS.
Subfile: B

Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., table

Descriptors: soil mechanics; deformation; foundations; theoretical studies; stress; plasticity; elastic properties; clays; analysis; finite element analysis; statistical methods; embankments; displacements; experimental studies; models; mathematical models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1010023 80-51171

A design method of deep excavation in cohesive soil based on the reliability theory

Matsuo, M.; Kawamura, K.

Soils Found (Tokyo) 20: 1, 61-75p., 1980

CODEN: SOIFBE ISSN: 0038-0806 12 REFS.

Subfile: B

Country of Publ.: Japan

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

illus., tables

Descriptors: soil mechanics; theoretical studies;

cohesive materials; excavations; construction; statistical

analysis; design; analysis; economics

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1010025 80-51199

A stress-strain relationship of normally consolidated cohesive soil under general stress condition

Omaki, S.

Soils Found (Tokyo) 20: 1, 29-43p., 1980

CODEN: SOIFBE ISSN: 0038-0806 35 REFS.

Subfile: B

Country of Publ.: Japan

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

illus., table

Descriptors: deformation; soil mechanics; experimental

studies; materials; properties; clays; soils; stress;

strain; elasto-plasticity; models; mathematical models;

failure; shear strength; cohesive materials; finite element

analysis; statistical methods; triaxial tests

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1010026 80-51041

Plasticity approach to landslide problems

Chen, W. F.; Koh, S. L.

Purdue Univ., Sch. Civ. Eng., West Lafayette, Indiana, USA

Mechanics of landslides and slope stability

Koh, S. L. (EDITOR)

Society of Engineering Science, 15th annual meeting,

Mechanics of landslides and slope stability, Gainesville,

Fla., United States, Dec. 5-6, 1978

Eng. Geol. 16: 1-2, 125-133p., 1980

CODEN: EGGDAD ISSN: 0013-7952 10 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

Descriptors: slope stability; soil mechanics; deformation
; landslides; theoretical studies; mechanism; plasticity
; mathematical models; models; automatic data processing;
finite element analysis; statistical methods; earthquakes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1010020 80-51020

Searching techniques in slope stability analysis

Routrup, E.; Lovell, C. W.

Purdue Univ., Sch. Civ. Eng., West Lafayette, Indiana, USA

Mechanics of landslides and slope stability

Koh, S. L. (EDITOR)

Society of Engineering Science, 15th annual meeting,

Mechanics of landslides and slope stability, Gainesville,

Fla., United States, Dec. 5-6, 1978

Eng. Geol. 16: 1-2, 51-61p., 1980

CODEN: EGGDAD ISSN: 0013-7952 6 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.

Descriptors: slope stability; automatic data processing;
failure; engineering geology; analysis; techniques;
statistical methods; computer programs; STAB; soil
mechanics; graphic methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

illus... table
 Descriptors: -Sweden; *seismology; engineering geology;
 earthquakes; intensity; Europe; 1951-1976; magnitude;
 seismic risk; geologic hazards; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1009063 80-50054

Experimental studies on the origin of low resistivity - low velocity layer beneath North China Plain and finite element analysis for its relationship to seismicity
 Loo Huanyen; Song Huishen; Gup Caihua
 International Union of Geodesy and Geophysics, 17th general assembly; ICG abstracts and timetable, Canberra, Australia, Dec. 3-15, 1979
 Int. Union Geod. Geophys., Gen. Assem., Abstr. 17, 3, 18 p., 1979
 CODE: ICABAX
 Subfile: B
 Country of Publ.: Varies
 Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 Descriptors: *seismology; *China; *rock mechanics; seismicity; materials; properties; tectonophysics; seismotectonics; earthquakes; igneous rocks; crust; Asia; North China Plain, magnetotelluric surveys; geophysical surveys; seismic surveys; resistivity; electrical properties; anomalies; low-velocity zones; experimental studies; laboratory studies; finite element analysis; statistical methods; theoretical studies; mechanical properties; p-T conditions; melting; mechanism; macroearthquakes; materials; properties; intraplate tectonics; stress
 Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

1010019 80-51265
Probabilistic stability analysis of earth slopes
 Vannarccke, E. H.
 Mass. Inst. Technol., Dep. Civ. Eng., Cambridge, Mass., USA

Mechanics of landslides and slope stability
 Koh, S. L. (EDITOR)
 Society of Engineering Science, 15th annual meeting, Mechanics of landslides and slope stability, Gainesville, Fla., United States, Dec. 5-6, 1978
 Eng. Geol. 16, 1-2, 29-50p., 1980
 CODE: EGGDAM ISSN: 0013-7952 21 REFS.
 Subfile: B
 Country of Publ.: International
 Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English

illus.
 Descriptors: *slope stability; failure; analysis; probability; statistical methods; theoretical studies; three-dimensional models; equilibrium analysis; soil numerical analysis; shear strength; embankments; soil mechanics
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1010010 80-50992

A method for mapping seismic intensities applied to Sweden
 Baath, M.
 Tectonophysics 66, 4, 111-118p., 1980
 CODE: TCTOAM ISSN: 0040-1951 11 REFS.
 Subfile: B
 Country of Publ.: International
 Doc Type: SERIAL: Bibliographic Level: ANALYTIC
 Languages: English

Note: Letter, illus., sketch map
 Descriptors: -Sweden; *seismology; *maps; earthquakes; engineering geology; cartography; geologic hazards; intensity; seismicity maps; Europe; statistical methods; magnitude; graphic methods; automatic data processing; seismicity; seismic risk
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1009956 80-50991

Intensity relations for Swedish earthquakes

Baath, M.
 Tectonophysics 67, 1-2, 163-173p., 1980
 CODE: TCTOAM ISSN: 0040-1951 19 REFS.
 Subfile: B
 Country of Publ.: International
 Doc Type: SERIAL: Bibliographic Level: ANALYTIC
 Languages: English

DIALOG File#9: GEOREF - 61-82/Sep (Copr. American Geological Institute) (Item 395 of 1356) User 5208 2 Sep 82

1006673 80-51252

A study on core discing of rock

Sugawara, K.; Kameoka, Y.; Oka, Y.; Hiramatsu, Y.
J. Min. Metall. Inst. Jap., 94: 1089, 797-803p., 1978
ISSN: 0369-4194 8 REFS.

Subfile: B

Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Japanese Summary Languages: English

illus.
Descriptors: *rock mechanics; *fractures; failure;
genesis; cores; loading; stress; tensile strength;
mechanism; finite element analysis; statistical methods;
deformation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1006370 80-45468

Least squares calculation of horizontal stresses from more than three diametral deformations in vertical boreholes

Duvall, W. I.; Agoston, J. R.
U. S. Bur. Mines, Rep. Invest. 8414, 11p., 1980
CODEN: XBMI46 ISSN: 0098-1922 7 REFS.

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
Languages: English

Descriptors: *rock mechanics; materials; properties;
stress; materials; properties; in situ; design;
mathematical methods; equations; least-squares analysis;
statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1005946 80-46017

Discontinuity models of problems in geomechanics

Starfield, A. M. Advances in analysis of geotechnical
Symposium on Waterloo, Ont., Canada, Sept. 1976-Oct.
1977

SM Stud. 13, 221-230p., 1978

ISSN: 0318-3122 15 REFS.

Subfile: B

Country of Publ.: Canada

Doc Type: SERIAL CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English

illus.
Descriptors: *rock mechanics; deformation; tension;
engineering geology; automatic data processing; models;
stress; displacements; joints; fractures; finite element
analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1005905 80-46080

Analysis of group pile foundation subjected to lateral loads by two-dimensional finite element method

Wakita, E.
Tsukhi-to Kiso 27: 9, 35-42p., 1979
8 REFS.

Subfile: B

Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Japanese Summary Languages: English

illus.
Descriptors: *foundations; piles; lateral loading;
two-dimensional models; models; finite element analysis;
statistical methods; plane strain; soil mechanics; loading;
three-dimensional models; new methods; group piles
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1005880 80-45809

Settlement under circular loading for construction of tank foundation

Jimno, K.; Ohira, A.; Saito, I.; Mae, K.
Tsukhi-to Kiso 26: 2, 33-40p., 1978
4 REFS.

Subfile: B

Country of Publ.: Japan

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Japanese Summary Languages: English

illus.
Descriptors: *foundations; soil mechanics; settlement;
loading; circular loading; strain; deformation; finite
element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1005760 80-45950

Use of a computer model in the safety assessment of buried nuclear waste repositories at a hypothetical site in the Columbia Plateau basalt

Petrie, G. M.
Battelle Pac., Northwest Lab., Richland, Wash., USA
The Geological Society of America, Cordilleran Section, 76th annual meeting, Corvallis, Oreg., United States, March 19-21, 1980
Geol. Soc. Am., Abstr. Programs 12: 3, 145p., 1980
CODEN: GAAPBC ISSN: 0016-7592
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Descriptors: Columbia Plateau; automatic data processing; engineering geology; waste disposal; geologic hazards; Columbia River Basalt; United States; radioactive waste; storage; probability; simulation; mathematical models; theoretical studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1005388 80-45858

Finite element simulation of Wilmington oil field subsidence; I. Linear modelling

Koaloff, D.; Scott, R. F.; Scranton, J.
Calif. Inst. Technol., Dep. Eng., Pasadena, Calif., USA
Long Beach Dep. Oil Prop., USA
Tectonophysics 65: 3-4, 339-368p., 1980
CODEN: TCTDAM ISSN: 0040-1951 27 REFS.
Subfile: B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., table, sketch maps
Latitude: N335000 Longitude: W1183000
Descriptors: California; engineering geology; land subsidence; Los Angeles County; United States; Southern California; Wilmington oil field; Long Beach; finite element analysis; statistical methods; mathematical models; simulation; numerical analysis; theoretical studies; tectonics; subsidence; rheology; plasticity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1005288 80-45974

Review of cases of damage related to dams

Rouve, G.

Lectures of the Seminar: Failures of large dams, reasons and

remedial measures

Rouve, G.; Strack, B.; Idel, K. H.; Beckmann, J.; Hager, M.; Bourcek, B.; Sovers, G. F.; Glig, B.
Failures of large dams: reasons and remedial measures. Aachen, German Democratic Republic, Jan. 6-7, 1977
Publ. Inst. Found. Eng., Soil Mech., Rock Mech., Water Ways Constr., RWTH (Univ.)

11-32p., 1977
12 REFS.
Subfile: B
Country of Publ.: Germany, Federal Republic of
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., sects., sketch maps
Descriptors: rock mechanics; dams; case studies; construction; failure; engineering geology; design; reservoirs; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1004994 80-45645

Modelling heat transfer and rock deformation processes in geothermal systems

Archambeau, C.; Holcomb, U.; Kassoy, D. R.; Rimelhart, J. S.; Zebib, A.
Univ. Colo., Boulder, Colo., USA

Second workshop on geothermal reservoir engineering: summaries

Kruger, P. (EDITOR); Ramey, H. J., Jr. (EDITOR)
Second workshop on geothermal reservoir engineering. Stanford, Calif., United States, Dec. 1-3, 1976
Publ: Stanford Univ.
263-267p., 1976
Subfile: B

Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Descriptors: rock mechanics; geothermal energy; theoretical studies; production; geothermal processes; geothermal systems; mathematical models; heat transfer; deformation; Mesa Anomaly; porous media; fault zones; fractures; convection; finite element analysis; statistical methods; dilatancy
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1004933 80-45702

Relationships between plasticity, natural moisture conditions and surface stability of some slope soils near Helmsley, North Yorkshire
Cooper, R

Geographical approaches to fluvial processes

Publ. A F (EDITOR)

Publ. Geo Abstracts

109 126p., 1974

ISBN 0800940276 2R REFS.

Subfile B

Country of Publ.: United Kingdom

Doc. Type: BOOK Bibliographic Level: ANALYTIC

Language: English

illus., plates, tables, sketch map, geol. sect.

Latitude: N532000; Longitude: E0001000; W0023000

Descriptors: England; soil mechanics; engineering

geology; materials; properties; slope stability;

plasticity; Europe; Yorkshire; Helmsley; erosion;

landslides; Green; clay; clastic sediments; moisture;

seasonal variations; statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1004903 80-45543

A relationship between productivity of gas wells and their locations with respect to lineaments: a statistical analysis

Zirk, W. F.; Lahoria, S. U.

W. Va. Univ., Dep. Stat. and Comput. Sci., Morgantown, W

Va., USA

36p., 1974

7 REFS.

Subfile B

Doc. Type: REPORT Bibliographic Level: MONOGRAPHIC

Language: English

Report No. MFIC/R 78/14

Availability: NTIS, Springfield, Va.; United States

illus., tables

Descriptors: natural gas; engineering geology;

production; petroleum engineering; statistical analysis;

lineaments; regression analysis; mathematical models;

models; structural controls; reservoir rocks; subsurface

reservoirs

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1001467 80-45829

Seismic response analysis of composite ground treated by deep chemical mixing stabilization method, part 1. Analytical method

Kawabata, T.; Niino, A.; Suzuki, Z.; Hayamizu, Y.; Matsui,

Y.; Suzuki, Y.

Fifth Japan earthquake engineering symposium, Tokyo, Japan
Nov. 28-30, 1978

Proc. Jap. Earthquake Eng. Symp. 5, 769-776p., 1978

10 REFS.

Subfile: B

Country of Publ.: Japan

Doc. Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: Japanese Summary Language: English

illus.

Descriptors: earthquakes; effects; ground motion;

Japan; Asia; engineering geology; finite element analysis;

statistical methods; geophysical methods; soil mechanics

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1004377 80-45754

Statistical analysis of earthquake ground motion with the effect of frequency-content correction

Goto, H.; Kaneda, H.; Imanishi, N.; Hashimoto, O.

Fifth Japan earthquake engineering symposium, Tokyo, Japan

Nov. 28-30, 1978

Proc. Jap. Earthquake Eng. Symp. 5, 49-57p., 1978

7 REFS.

Subfile B

Country of Publ.: Japan

Doc. Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: Japanese Summary Language: English

illus.

Latitude: N300000; Longitude: E1470000; E1290000

Descriptors: earthquakes; effects; ground motion;

Japan; Asia; engineering geology; accelerograms

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1003811 80-45683

Determination of earth pressures on sheet pile walls from measures of deflections and bending moments

Chile, E O f
Helfl. Lab Groundmechanica, LGM Meded 20 2-4, 87-97p.
1979

5 REFS.
Subfile B
Country of Publ.: Netherlands
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables
Descriptors: foundations; soil mechanics; piles;
theoretical studies; mathematical models; finite
element analysis; statistical methods; least squares
analysis; earth pressure; structures
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1002789 80-46757

Better exploration decisions with probability analysis

Bratis, J C
Kansas Geol. Surv.: Lawrence, Kans.: USA
U. S. Geol. Surv. 1: 5, 6-8p.
1979
Subfile B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Descriptors: mineral exploration; petroleum; methods;
exploration; probability; engineering geology; petroleum
engineering; geophysical surveys; models; analysis;
automatic data processing
Section Headings: 26 (ECONOMIC GEOLOGY, GENERAL & MINING)

1002615 80-45503

Probabilistic estimates of maximum seismic horizontal ground motion on rock in the Pacific Northwest and the adjacent outer continental shelf

Parkins, D M; Thomas, P C; Hanson, S L; Zinn, J I
Algermisson, S T
U. S. Geol. Surv. Open File Rep. 80-471, 40p.
1980
COPEN XEROX
Subfile B
Country of Publ.: United States
Doc Type: SERIAL REPORT Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: U. S. Geol. Surv. Open File Serv. Sect.
Branch Distrib. Denver, Colo.: United States
illus.
Latitude: N400000; Longitude: W1200000; W1260000
Descriptors: Pacific Coast; Washington; Oregon;
seismology; oceanography; engineering geology;

earthquakes; continental shelf; geologic hazards; seismic risk; United States; outer shelf; ground motion; probability; horizontal movements
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1002389 80-46795

Notes on the application of the finite element method to mining research

Scoble, M. J. (COMPILER)
Min. Dep. Mag. - Univ. Nott., Dep. Min. Eng. 28, 57-67p.
1976
ISSN: 0307-9066 8 REFS.
Subfile: B
Country of Publ.: United Kingdom
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: automatic data processing; mining geology; engineering geology; methods; mathematical models; statistical analysis; models; finite element analysis; statistical methods
Section Headings: 26 (ECONOMIC GEOLOGY, GENERAL & MINING)

1001410 80-40448

Rock mechanics investigations into the directional stability of underground mine roadways in the Southern Coalfield of New South Wales

Yeates, R. A.
Univ. of New South Wales, AUS
unknown.
Subfile: B
Degree Level: Doctoral
Country of Publ.: Australia
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Latitude: S373000; S281500 Longitude: E1533000; E1410000
Descriptors: New South Wales; rock mechanics; mining geology; engineering geology; site exploration; technology; underground installations; mines; Australia; Southern Coalfield; coal fields; stability; roadways; orientation; stress; deformation; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1001409 80-40444

Probabilistic analysis of stability and settlement of structures on soft Bangkok Clay

Author: An, C.
 Asian Inst. of Technol., THA
 Bangkok 104, THA
 Subfile B
 Degree Level: Doctoral
 Country of Pub: Thailand
 Doc Type: THESIS
 Bibliographic Level: MONOGRAPHIC
 Languages: English
 Availability: Univ. Microfilm
 Latitude: N01500; Longitude: E1060000; E0963000
 Descriptors: Thailand; soil mechanics; engineering geology; materials; properties; clays; Asia; materials; properties; Bangkok Clay; settlement; probability; factor analysis; statistical methods; stability; finite element analysis; failure; deformation; shear strength; compressibility.
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1001157 80-39530

Note on measured values for the state of stress in the Earth's crust

Author: Jamison, D. R.; Cook, N. G. W.
 Lawrence Berkeley Lab., Dep. Mater. Sci. and Miner. Eng., Berkeley, Calif., USA
 J. Geophys. Res. 85, B4, 1833-1838p., 1980
 CODEN: JUPRPS ISSN 0148-0227 30 REFS
 Subfile B
 Country of Pub: United States
 Doc Type: SERIAL
 Bibliographic Level: ANALYTIC
 Languages: English
 Illustrations: Table
 Descriptors: deformation; rock mechanics; crust; field studies; interpretation; stress; theoretical studies; in situ; statistical analysis; strain; plate tectonics
 Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

1000859 80-40804

**K voprosu o primeneni matematicheskogo modelirovaniya geologicheskikh poley pri krupnomasshtabnykh inzhenerno-geologicheskikh issledovaniyakh
 The use of mathematical models of geological fields during large-scale engineering geological studies**

Author: Sheshukov, A. A.
 Sovremennyye metody izucheniya fiziko-mekhanicheskikh svoystv gornyykh porod
 Zhurkova, A. P. (EDITOR); Bondarik, G. K. (EDITOR); Iveruskaia, Ye. N. (EDITOR); Tsareva, A. M. (EDITOR);

Author: Tsarev, P. V. (EDITOR); Matis, T. I. (EDITOR)
 Vses. Nauchno-Issled. Inst. Gidrogeol. Inzh. Geol., Tr., N. S. 107, 76-80p., 1976
 ISSN: 0541-1025 4 REFS.
 Subfile B
 Country of Pub: Union of Soviet Socialist Republics
 Doc Type: SERIAL
 Bibliographic Level: ANALYTIC
 Languages: Russian
 Illustrations:
 Descriptors: engineering geology; methods; mathematical models; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1000830 80-40493

**Postroyeniye karty opolznevoy aktivnosti na ETSVM
 Constructing a map of creep activity using computers**

Author: Bondarenko, A. A.; Kopylova, A. F.

Voprosy prognozirovaniya opolznevykh i erozionnykh protsessov

Author: Siroko, A. I. (EDITOR); Kyunttsel', V. V. (EDITOR); Krupoderov, V. S. (EDITOR); Tarasova, G. I. (EDITOR)
 Vses. Nauchno-Issled. Inst. Gidrogeol. Inzh. Geol., Tr., N. S. 119, 33-37p., 1978
 ISSN: 0541-1025 3 REFS.
 Subfile B
 Country of Pub: Union of Soviet Socialist Republics
 Doc Type: SERIAL
 Bibliographic Level: ANALYTIC
 Languages: Russian
 Descriptors: slope stability; automatic data processing; maps; erosion; engineering geology; cartography; creep; programs; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1000131 80-40736

The Tashkent-California system of earthquake spectra

Ruzhnikov, Yu. V.; Seymurzova, S. S.
Phys. Solid Earth (Engl. Ed.) 14, 10, 722-734p., 1979
CODEN: JPSER9 ISSN: 0001-4354 28 REFS.

Subfile B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.: sketch maps

Latitude: N323000 Longitude: W1141500; W1243000
Descriptors: California; *seismology; *USSR; earthquakes;
engineering geology; geologic hazards; spectral analysis;
United States; Tashkent; elastic waves; probability;
seismic risk; zoning; seismicity; mathematical models;
models

Section Headings: 19 (GEOPHYSICS, SEISMOLOGY)

999827 80-40762

Canadian methodologies of probabilistic seismic risk estimation: discussion and reply

Lowmyr, C.; Weichert, D. H.; Milne, W. G.

Pac. Geosci. Cent., Sidney, B.C., CAN

Seismol. Soc. Am., Bull., 70: 3, 933, 935p., 1980

CODEN: BSSAAP ISSN: 0037-1106 4 REFS

Subfile B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

Note: For reference to paper by Weichert, D. H., and Milne, W. G., see Seismol. Soc. Am., Bull., vol. 69, p. 1549, 1979.

Latitude: N120000 Longitude: W0520000; W1410000

Descriptors: *automatic data processing; *geologic hazards;
*earthquakes; *seismology; engineering geology; prediction;
seismic risk; Canada; probability; mathematical methods;
magnitude; detection

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

999645 80-40440

A study of the imperfect ditch method for rigid culverts

Rude, L. C.

Univ. of Virginia, Charlottesville, Va., USA

274p., 1979

Subfile B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Availability: Univ. Microfilms

Descriptors: *soil mechanics; *automatic data processing;
earth pressure; engineering geology; loading; culverts;

mathematical models; models; theoretical studies;
deformation; finite element analysis; statistical methods;
design

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

999643 80-40435

Modeling and finite element analysis of soil behavior

Karshenas, M.

Univ. of Illinois, Urbana, Ill., USA

294p., 1979

Subfile B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Availability: Univ. Microfilms

Descriptors: *soil mechanics; *automatic data processing;
*tunnels; earth pressure; engineering geology; models;
experimental studies; mathematical models; finite element
analysis; statistical methods; theoretical studies;
computer programs; laboratory studies; stress; deformation

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

999104 80-40556

Love and Rayleigh waves in an irregular soil layer

Drake, L. A.

Univ. Calif., Seismogr. Stn., Berkeley, Calif., USA

Seismol. Soc. Am., Bull., 70: 2, 571-582p., 1980

CODEN: BSSAAP ISSN: 0037-1106 25 REFS.

Subfile B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.: tables

Descriptors: *geologic hazards; *soil mechanics; *seismology;
*earthquakes; elasticity; properties; ground motion;
elastodynamic properties; mechanism; elastic waves; Love
waves; Rayleigh waves; propagation; finite element analysis;
statistical methods; layered media; theoretical studies;
elastic properties; strong motion

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

998361 80-40876

Rock stress measurements at Nagjharl tunnels, Kallinadi hydro-electric project, India

Savina, P. C.; Mochashi, S. L.; Rame Gowda, B. M.
Fourth congress of the International Society for Rock Mechanics, Montreux, Switzerland, September 2-8, 1979
Int. Soc. Rock Mech., Congr., Proc., 4, Vol. 2, 589-594p., 1979

CODEN: 32ZUA4 ISSN: 0074-848X 8 REFS.

Subfile: B

Country of Publ.: Varies

Doc. Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English Summary Languages: French

illus.: tables

Descriptors: India; rock mechanics; engineering geology;

case studies; tunnels; Asia; dams; Nagjharl tunnels;

statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

998356 80-40869

Role of stabilizing pillars in the alleviation of rock burst hazard in deep mines

Salomon, M. D. G.; Wagner, H.
Fourth congress of the International Society for Rock Mechanics, Montreux, Switzerland, September 2-8, 1979
Int. Soc. Rock Mech., Congr., Proc., 4, Vol. 2, 561-566p., 1979

CODEN: 32ZUA4 ISSN: 0074-848X 5 REFS.

Subfile: B

Country of Publ.: Varies

Doc. Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English Summary Languages: French

illus.: tables

Descriptors: rock mechanics; case studies; mining;

stress; mathematical models; models; statistical analysis;

rock bursts

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

998343 80-40806

Skin resistance tests of model piles in hard rocks

Nemec, J. M.
Fourth Congress of the International Society for Rock Mechanics, Montreux, Switzerland, September 2-8, 1979
Int. Soc. Rock Mech., Congr., Proc., 4, Vol. 2, 475-478p., 1979

CODEN: 32ZUA4 ISSN: 0074-848X

Subfile: B

Country of Publ.: Varies

Doc. Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English Summary Languages: German

illus.

Descriptors: rock mechanics; foundations; materials;

properties; piles; adhesion; statistical analysis;

materials; properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

998314 80-40877

An analysis of several borehole techniques for determining stress and modulus

Hustrulid, W.
Colorado Sch. Mines, Golden, Colo., USA
Fourth Congress of the International Society for Rock Mechanics, Montreux, Switzerland, September 2-8, 1979
Int. Soc. Rock Mech., Congr., Proc., 4, Vol. 2, 249-258p., 1979

CODEN: 32ZUA4 ISSN: 0074-848X 20 REFS.

Subfile: B

Country of Publ.: Varies

Doc. Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English Summary Languages: French

illus.: tables

Descriptors: rock mechanics; materials; properties;

stress; statistical analysis; materials; properties;

instruments; boreholes

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

998298 80-40578

Allgemeine Geotechnische Gesichtspunkte und Grenzgleich-Gewichtsbeziehungen als erste Orientierung bei der Planung von Talsperren
General geotechnical considerations and finite element analysis in the planning of dam foundations

Ficker, E.; Mueller, L.; Reik, G.
Fourth Congress of the International Society for Rock Mechanics, Montreux, Switzerland, September 2-8, 1979
Int. Soc. Rock Mech., Congr., Proc., 4, Vol. 2, 131-140p., 1979

CODEN: 32ZUA4 ISSN: 0074-848X 6 REFS.

Subfile: 8

Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: German Summary Languages: English

illus., tables
Descriptors: *rock mechanics; *dams; *foundations; excavations; methods; structure; statistical analysis; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

998295 80-40551

Site investigations and FEM calculations for two underground caverns in Peru

Onizalova, M.; Drozd, K.
Fourth Congress of the International Society for Rock Mechanics, Montreux, Switzerland, September 2-8, 1979
Int. Soc. Rock Mech., Congr., Proc., 4, Vol. 2, 105-112p., 1979

CODEN: 32ZUA4 ISSN: 0074-848X 8 REFS.

Subfile: 8

Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English Summary Languages: German

illus., tables
Latitude: S181500; Longitude: W0700000; W0811000
Descriptors: *Peru; *rock mechanics; engineering geology; case studies; underground installations; power plants; South America; excavations; shear strength; statistical analysis; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

998293 80-40545

L'identification des roches par l'indice de continuite
Rock identification by means of continuity index

Denis, A.; Panet, M.; Touring, C.
Fourth Congress of the International Society for Rock Mechanics, Montreux, Switzerland, September 2-8, 1979

Int. Soc. Rock Mech., Congr., Proc., 4, Vol. 2, 95-98p., 1979

CODEN: 32ZUA4 ISSN: 0074-848X 6 REFS.

Subfile: 8

Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: French Summary Languages: English

illus., table
Descriptors: *rock mechanics; experimental studies; testing; continuity index; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

998284 80-40483

Classement statistique de mesures sismiques et conception de barrages

Statistical classification of seismic measurements and dam design

Bertrand, Y.; Lakshmanan, J.; Rouge, J.
Fourth Congress of the International Society for Rock Mechanics, Montreux, Switzerland, September 2-8, 1979
Int. Soc. Rock Mech., Congr., Proc., 4, Vol. 2, 35-40p., 1979

CODEN: 32ZUA4 ISSN: 0074-848X

Subfile: 8

Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: French Summary Languages: English

illus.
Descriptors: *dams; *rock mechanics; excavations; seismicity; grouting; experimental studies; granite; granite-granodiorite family; schist; schists
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

996619 80-35664

Simplified finite-element models for reservoir flow problems

Dalen, V. Eng. AIME, J. 19, 5, 333-343p., 1979
 Soc. Pet. Eng. AIME, J. 19, 5, 333-343p., 1979
 CODEN: SPTUJAU ISSN: 0037-9999 25 REFS.
 Subfile: B

Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.

Descriptors: *engineering geology; *petroleum engineering
 ; mathematical models; finite element analysis; statistical
 methods; flow; models; reservoir rocks; subsurface
 reservoirs; natural gas; two-phase flow; viscosity;
 single-phase flow
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

996578 80-35626

Digital terrain analysis for land evaluation

Carrara, A.; Catalano, E.; Sorriso Valvo, M.; Reali, C.;
 Osso, I. Appl. Idrogeomol. 13, 69-127p., 1978
 CODEN: GAIDRG ISSN: 0435-3870 100 REFS.
 Subfile: B

Country of Publ.: Italy
 Doc Type: SERIAL; MAP Bibliographic Level: ANALYTIC
 Languages: English Summary Languages: Italian
 illus.; land use maps

Latitude: N393000; Longitude: E0160000
 Descriptors: *Italy; *automatic data processing;
 *geomorphology; *environmental geology; engineering geology
 ; land use; land use maps; slope stability; Europe;
 Calabria; Ferro Basin; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

996392 80-36005

The predicted performance of soft clay under a trial embankment loading based on the Cam-Clay model

Wroth, C. P.
 Settlement and stability of earth embankments on soft
 foundations
 Settlement and stability of earth embankments on soft
 foundations. Crowthorne, United Kingdom, April 23, 1976
 TRRL Suppl. Rep. 399, 399, 22-42p., 1978
 ISSN: 0305-1315 8 REFS.
 Subfile: B

Country of Publ.: United Kingdom
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 Note With discussion, illus., table, sect.

Descriptors: *soil mechanics; *foundations; *slope stability
 ; embankments; loading; models; materials, properties;
 Cam-Clay model; soft clays; elastoplastic materials; stress
 ; strain; shear; elastic materials; plastic materials;
 finite element analysis; statistical methods; consolidation
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

996336 80-35727

Wave propagation and its characteristics due to underground loading

Goto, H.; Takada, S.; Yoshida, A.
 Kyoto Univ., Disaster Prev. Res. Inst., Ann. 17B, 417-438
 1974
 CODEN: KOBKAW ISSN: 0386-412X 6 REFS.

Subfile: B
 Country of Publ.: Japan
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: Japanese Summary Languages: English
 illus.

Descriptors: *soil mechanics; *foundations; *earthquakes;
 seismic response; structures; effects; propagation;
 elastic waves; loading; finite element analysis;
 statistical methods; controls; stability; trenches; models
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

996330 80-35949

Moduli of elasticity of soils and their application to deformation analysis of soil structures

Sugano, Y.; Watanabe, H.; Matsuoka, H.
 Kyoto Univ., Disaster Prev. Res. Inst., Ann. 17B, 335-346
 1974
 CODEN: KOBKAW ISSN: 0386-412X 7 REFS.

Subfile: B
 Country of Publ.: Japan
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: Japanese Summary Languages: English
 illus.

Descriptors: *soil mechanics; *foundations; *deformation;
 elastic constants; Young's modulus; Poisson's ratio; finite
 element analysis; statistical methods; stress; strain;
 physical models; models; piles; granular materials;
 two-dimensional models; triaxial tests; plane strain;
 compression; tension
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

995928 80-35703

Relation of beach erosion to sediment patterns, Rhode Island barrier beaches

Fisher, J. J.; Hagstrom, E. L.
Univ. R.I., Dep. Geol., Kingston, R.I., USA; Phillips Pat., USA

The Geological Society of America, Northeastern Section, 15th annual meeting, Philadelphia, Pa., United States, March 13-15, 1980

Geol. Soc. Am., Abstr. Programs 12: 2, 35-36p., 1980
CODEN: GAAPRC ISSN: 0016-7592

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

Latitude: N411000 Longitude: W0710700; W0715500

Descriptors: *Rhode Island; *sedimentation; *geomorphology; *engineering geology; environment; shore features; shorelines; coastal environment; beaches; United States; erosion; barrier beaches; rates; changes; marine transport; statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

995548 80-35872

Physical property statistics or how to hide an anomaly

Ochoert, G. R.

U. S. Geol. Surv., Denver, Colo., USA

Society of Exploration Geophysicists, 49th annual international meeting, New Orleans, La., United States, Nov. 4-8, 1979

Soc. Explor. Geophys., Annu. Int. Meet., Abstr. 49, 51-52 p., 1979

CODEN: SGAMB7

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

Descriptors: *rock mechanics; *mineral exploration; materials; properties; statistical methods; physical properties; anomalies; materials; properties; automatic data processing; geophysical methods; density; electrical properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

995409 80-35658

Probability of earthquake ground accelerations in San Diego

Crouse, C. B.

Figro, Long Beach, Calif., USA

Earthquakes and other perils, San Diego region

Abbott, P. L. (EDITOR); Elliott, W. J. (EDITOR)

Publ.: San Diego Assoc. Geol.

107-113p., 1979

7 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus., sketch map

Latitude: N324500; N324500 Longitude: W1171000; W1171000

Descriptors: *California; *engineering geology; earthquakes; United States; acceleration; ground motion; San Diego; statistical methods; mathematical models; models

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

995217 80-35493

The correlation of response spectral amplitudes with seismic intensity

O'Brien, L. J.

Comput. Sci. Corp., Falls Church, Va., USA

variously paginatedp., 1980

12 REFS.

Subfile: B

Doc Type: REPORT Bibliographic Level: MONOGRAPHIC

Languages: English

Report No.: NUREG/CR-1259

Availability: NTIS, Springfield, Va., United States

illus., tables

Descriptors: *seismology; *earthquakes; effects; intensity; ground motion; amplitude; response spectra; statistical analysis; frequency; strong motion; applications; engineering geology; magnitude

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

995102 80-35812

Statisticheskly podkhod k zadacham rayonirovaniya massivov gornyykh porod
Statistical approach to problems in the classification of rock complexes
Leytsh, M. N.; Aleshin, Yu. G.

Napryazhennoye sostoyaniye i prochnost' massivov gornyykh porod
Avimatrov, I. T. (EDITOR)

Publ 12d 111m

38-54p., 1977

9 REFS.

Subfile: B

Country of Publ.: Union of Soviet Socialist Republics

Doc Type: BOOK Bibliographic Level: ANALYTIC

Language: Russian

Illustr.: tables
Descriptors: rock mechanics; materials; properties; statistical methods; engineering geology; methods; stochastic processes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

995074 80-35623

Winters statistics: characterisation and principal types of winter in France
Charnard, L.

Soil freezing and highway construction

Williams, P. J. (EDITOR); Fremont, M. (EDITOR)

Soil freezing and highway construction. Ottawa, Ont., Canada, Oct. 17-21, 1977

Publ: Carleton Univ. Ecole Nat. des ponts et chaussées

40-44p., 1977

2 REFS.

Subfile: B

Country of Publ.: France

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

Illustr.

Descriptors: France; permafrost; engineering geology; frost action; soil mechanics; Europe; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

994567 80-35609

Freshwater reserves of Mid-Atlantic coast barrier islands

Rollard, T. H.; Hornberger, G. M.; Dolan, R.; Hayden, B. P.

Univ. Va. Dep. Environ. Sci., Charlottesville, Va., USA

Environ. Geol. 3: 1, 11p., 1980

CODEN: ENRGEO ISSN: 0099-0694 16 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Language: English
Illustr.: tables, sketch maps
Latitude: N340000; Longitude: W0750000; W0790000
Descriptors: Maryland; Virginia; North Carolina; ground water; hydrology; engineering geology; surveys; shorelines; Atlantic Coastal Plain; barrier islands; United States; environmental geology; Assateague Island; Outer Banks; North America; aquifers; mathematical models; models; multiple regression analysis; statistical analysis; water resources; reserves
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

994481 80-35902

A method of analysis of the effects of volume change in unstratified expansive clays on engineering structures

Richards, B. G.

Aust. Geomech. J. 69, 27-41p., 1979

CODEN: AUGJBU ISSN: 0313-4458 44 REFS.

Subfile: B

Country of Publ.: Australia

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

Descriptors: soil mechanics; materials; properties; expansive materials; engineering geology; materials; properties; elastic strain; finite element analysis; statistical methods; elasticity; stress; plasticity; clays; moisture; mathematical models; models; consolidation; case studies; applications
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

994095 80-35645

Probability of pillar failure at Elliot Lake
Coates, D. F.

Advances in rock mechanics--Progres en mecanique des roches--Fortschritte in der Felsmechanik; Events and discussion

Wallace, G. B. (chairperson)
Third congress of the International Society of Rock Mechanics; Advances in rock mechanics. Denver, Colo., United States, September 1-7, 1974
Int. Soc. Rock Mech., Congr., Proc., 3, Vol. 3, 133-143p., 1974
CODEN 32ZUA4 ISSN: 0074-848X 8 REFS.

Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus.

Descriptors: Ontario; rock mechanics; engineering geology; experimental studies; foundations; Canada; Elliot Lake
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

992938 80-35810

Improvement of reservoir simulation by a triangular discontinuous finite element method

Lemonnier, P. A.
54th annual fall technical conference and exhibition of the Society of Petroleum Engineers of AIME, Las Vegas, Nev., United States, Sept. 23-26, 1979
Soc. Pet. Eng. AIME, Annu. Fall Tech. Conf. Exhib., Pap. 54 1-11p., 1979
ISSN 0560-642X 12 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Note: Sp. A249, illus., tables

Descriptors: engineering geology; petroleum engineering; reservoir rocks; reservoir properties; experimental studies; finite element analysis; statistical methods; mathematical models; three-dimensional models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

992683 80-35486

Probabilistic procedures for assessing soil liquefaction potential

McGuire, R. K.; Tatsuoka, F.; Iwasaki, T.; Tokida, K. I.

U. S. Geol. Surv., Denver, Colo., USA
J. Res. (Tokyo) 19, 38p., 1978
CODEN: JRPWAI 37 REFS.

Subfile: B
Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
Languages: English
illus., tables, sketch map
Latitude: N353000; N355000 Longitude: E1401000; E1394500
Descriptors: Japan; soil mechanics; earthquakes; engineering geology; materials; properties; effects; liquefaction; Asia; Honshu; Tokyo Bay; reclamation; sand; clastic sediments; seismicity; probability; acceleration; shear stress; ground motion; strong motion; statistical analysis; strength; shear strength; liquefaction potential index; penetration tests; in situ; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

992518 80-35611

Studio delle deformazioni in una coltre argillosa dovute a movimenti lungo faglie nel substrato due to movements along faults in the bedrock

Bosi, C.; Cappellari, G.; Ottaviani, M.
Geogr. Fis. Din. Quaternaria 2-1, 29-34p., 1979
ISSN: 0084-8948 11 REFS.

Subfile: B
Country of Publ.: Italy
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Italian Summary Languages: English
illus., tables
Descriptors: soil mechanics; faults; deformation; displacements; clays; normal faults; finite element analysis; statistical methods; bedrock
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

992302 80 35572

Fundamental study on instability of tunnel in consideration of post peak strain softening behavior of rock

Arai, K.; Mori, M.
Kyoto Univ., Fac. Eng., Mem. 40, Part 2, 78-99p., 1978
CODEN MEKYAC ISSN 0023-6063 17 REFS.
Subfile: B
Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: table

Descriptors: tunnels; rock mechanics; stability; methods; finite element analysis; statistical methods; Mohr envelope; Coulomb's law; strain; failure; stress; elastoplastic materials; tensile strength
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

991523 80 30785

Metodyka badan wlasnosci skal przy wykorzystaniu petroskopu
A study of rock properties using a petroscope

Dlascowski, W.; Wachelka, L.; Hanas, A.
Przegi Geol., 27: 101318), 557-562p., 1979
CODEN PRZGAL ISSN 0033-2151 6 REFS.
Subfile: B
Country of Publ.: Poland
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Polish Summary Languages: English
illus.: table

Descriptors: rock mechanics; materials; properties; compressive strength; physical properties; instruments; techniques; statistical analysis; acoustical methods; geophysical methods; materials; properties; petrosopes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

990840 80 30783

On fundamental nature of microtremors and its application

Nagoshi, M.
Akita Univ., Min. Coll., J., Ser. A 5 3, 1-51p., 1978
CODEN JMMAAF ISSN 0568-7365 65 REFS.
Subfile: B
Country of Publ.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables

Descriptors: Japan; seismology; engineering geology; microseisms; earthquakes; applications; effects; damage; seismic design; Asia; Hokkaido; Hakodate; statistical analysis; seismograms; waveforms
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

990495 80 30644

Stabilization of Idikki arch dam foundation

Desimukh, A. M.
Indian Geotech. J., 8: 2, 81-90p., 1978
CODEN IGJTAG 9 REFS.
Subfile: B
Country of Publ.: India
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: table, sects.

Latitude: N080000 Longitude: E0770000; E0750000
Descriptors: India; engineering geology; dams; Asia; Kerala; arch dams; Idikki Dam; Periyar River; finite element analysis; statistical methods; loading; models; stability; seepage; controls; grouting; foundations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

990298 80 30875

The use of synthetic series in hydraulic design

Torelli, L.; Tonasi, P.

Special issue 1977: 4th Iraqi geological congress
4th Iraqi geological congress, Baghdad, Iraq, March, 1976

Geol. Soc. Iraq, J., 235-246p., 1977
CODEN: GSJUAN ISSN: 0533-8301
Subfile: B
Country of Publ.: Iraq
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: tables, sketch map

Descriptors: waterways; dams; design; statistical methods; hydraulics; hydrology; simulation; Aveto River; Trebbia River; Iraq; Middle East; rivers and streams; reservoirs; discharge; engineering geology; storage
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

988828 80-32038

Economic considerations and risk analysis in formulating reservoir development plans
Mortada, M.

Reservoir engineering: its role in hydrocarbon resources development
Anonymous

Reservoir engineering: its role in hydrocarbon resources development. Kuwait, Dec. 6-8, 1977
Publ: Organ. Arab Petroleum Export Cnrys.
74-97p. 1979
7 REFS.

Subfile: B
Country of Publ.: Kuwait
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
Note: With discussion. illus., tables
Descriptors: engineering geology; petroleum; economics; engineering; production; risk analysis; possibilities; subsurface reservoirs; development; models
Statistical analysis; reserves; exploration; energy sources
Section Headings: 29 (ECONOMIC GEOLOGY, ENERGY SOURCES)

983093 80-31509

Inzhenerno-geologicheskiye osobennosti zhelezorudnykh mestorozhdeniy
Engineering-geological features of iron deposits

Glushko, V. T.; Borisenko, V. G.
Publ: Izd. Nedra
251p. 1978
179 REFS

Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc Type: BOOK Bibliographic Level: MONOGRAPHIC

Languages: Russian
illus., tables
Latitude: N473000 Longitude: E0353000; E0323000
Descriptors: USSR; engineering geology; economic geology
Statistical analysis; iron; ore deposits; Krivoy Rog Basin; statistical analysis; instruments
Section Headings: 27 (ECONOMIC GEOLOGY, METALS)

988076 80-20762

Raschet svay s ispol'zovaniyem drobno-lineynoy zavisimosti
Calculation for piles using particle-linear functions

Mil'mburg, Yu. S.
Inzhenernoye merzlotovedeniye
Mol'mukov, P. I. (EDITOR); Voytkovskiy, K. F. (EDITOR);

Kudryavtsev, V. A. (EDITOR); Avsyuk, G. A. (EDITOR); Vyalov, S. S. (EDITOR); Grave, N. A. (EDITOR); Kotlyakov, V. M. (EDITOR); Popov, A. I. (EDITOR); Protas'yeva, I. V. (EDITOR); Sluzhskiy, P. A. (EDITOR)

Publ: Izd. Nauka
63-67p. 1979
7 REFS.

Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: Russian
Descriptors: permafrost; foundations; engineering properties; piles; plasticity; bearing capacity; mathematical methods; engineering geology; construction; stability; materials; properties; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

987560 80-29499

Variation of density with rock type, depth, and formation in the Western Canada Basin from density logs

Maxant, J.
Hydro-Que., Geol. Dep., Montreal, Que., CAN
Geophysics 45: 6, 1061-1076p., 1980
CODEN: GPYSA7 ISSN: 0016-8033 19 REFS

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English
Note: Can., Earth Phys. Branch; Contrib. No. 799. illus., tables, sketch maps

Latitude: N490000 Longitude: W100000; W1200000
Descriptors: Canada; well-logging; Alberta; Saskatchewan; rock mechanics; sedimentary rocks; geophysical surveys; materials; properties; radioactivity; density; gamma-gamma methods; Western Canada Basin; depth; stratigraphic units; sandstone; clastic rocks; limestone; carbonate rocks; dolomite; shale; lithology; statistical analysis; Paleozoic; Phanerozoic; Cretaceous; Mesozoic; Beaverhill Lake Formation; Duperow Formation; Manuville Formation; Colorado Group; skewness; geophysical methods; materials; properties
Section Headings: 17 (GEOPHYSICS, GENERAL)

987501 80-30540

Behavior of slopes in weakly cemented soils under static and dynamic loading

Sitar, N.

Stanford Univ., Stanford, Calif., USA

183p., 1979

Subfile: B

Degree Level: Doctoral

Country of Pub.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Language: English

Availability: Univ. Microfilms

Descriptors: soil mechanics; deformation; slope stability; failure; field studies; tensile strength; cementation; diagenesis; loading; cyclic loading; dynamic loading; static loading; experimental studies; theoretical studies; finite element analysis; statistical methods; elastic properties; earthquakes; geologic hazards

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

987497 80-30543

Seepage erosion of geotechnical structures subjected to confined flow; a probabilistic design approach

van Zyl, D. J. A.

Purdue Univ., West Lafayette, Indiana, USA

261p., 1979

Subfile: B

Degree Level: Doctoral

Country of Pub.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Language: English

Availability: Univ. Microfilms

Descriptors: foundations; seepage; erosion; design; failure; probability; experimental studies; granular materials; soil mechanics

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

987451 80-29447

Intensity of systematic joints; methods and application

Whitler, R. L.; Dixon, J. M.

W. Va. Univ., Dep. Geol. and Geogr., Morgantown, W. Va., USA

Geology (Boulder) 8: 5, 230-233p., 1980

CODEN: GLGYEA ISSN: 0091-7613 21 REFS.

Subfile: B

Country of Pub.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

Illustr.

Latitude: N323000 Longitude: W0640000; W0870000

Descriptors: Appalachians; structural analysis; fractures; rock mechanics; structural geology; style; methods

Joints: statistical methods; North America; Appalachian Plateau; Valley and Ridge Province; distribution; intensity; mining geology; reservoir rocks; natural gas; quantitative methods

Section Headings: 16 (STRUCTURAL GEOLOGY)

987096 80-30205

Seepage characteristics through an abandoned tailings pile

Morilla, A. G.; Fortier, D. H.

Univ. Idaho, Moscow, Idaho, USA

El agua en la minería y trabajos subterráneos; V. 1-III
Fernandez-Rubio, R. (EDITOR); Benavente Herrera, J. (EDITOR); Lopez Egea, A. (EDITOR); Pulido Bosch, A. (EDITOR); Tobes Gonzalez, M. A. (EDITOR); Valle Cardenete, M. (EDITOR); Vague Ballester, A. (EDITOR)

SIAMDS-78: El agua en la minería y trabajos subterráneos, Granada, Spain.

Publ: Asoc. Nac. Ing. Minas

847-862p., 1978

6 REFS.

Subfile: B

Country of Pub.: Spain

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English Summary Languages: French

Illustr.: sketch maps

Latitude: N4700000 Longitude: W1105000; W1171500

Descriptors: mining geology; ground water; Idaho; automatic data processing; hydrology; production control; hydrogeology; surveys; underground installations; engineering geology; mining; mines; United States; mathematical models; precipitation

Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

987095 80-30198

Free surface flow in porous media by finite element methods
Martins, J. B.; Matos, A. C.; Bianchi, A.

El agua en la minería y trabajos subterráneos; V. I-III
Fernandez-Rubio, R. (EDITOR); Benavente Herrera, J. (EDITOR); Lopez Egea, A. (EDITOR); Pulido Bosch, A. (EDITOR); Tobes Gonzalez, M. A. (EDITOR); Valle Cardenete, M. (EDITOR); Vague Ballester, A. (EDITOR)
SIAMOS-78: El agua en la minería y trabajos subterráneos, Granada, Spain.
Publ.: Asoc. Nac. Ing. Minas
825-846p., 1978
31 REFS.

Subfile: B
Country of Publ.: Spain
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
Illustr.:
Descriptors: mining geology; ground water; production control; movement; finite element analysis; surveys; hydrogeology; underground installations; engineering geology; mining; mines; statistical methods; mathematical models; models; porous media
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

987092 80-30577

Reliability and the factor of safety due to piping

Harr, M. E.; Sipher, D. J.
Purdue Univ., Sch. Civ. Eng., West Lafayette, Indiana, USA

El agua en la minería y trabajos subterráneos; V. I-III
Fernandez-Rubio, R. (EDITOR); Benavente Herrera, J. (EDITOR); Lopez Egea, A. (EDITOR); Pulido Bosch, A. (EDITOR); Tobes Gonzalez, M. A. (EDITOR); Valle Cardenete, M. (EDITOR); Vague Ballester, A. (EDITOR)
SIAMOS-78: El agua en la minería y trabajos subterráneos, Granada, Spain.
Publ.: Asoc. Nac. Ing. Minas
775-788p., 1978
4 REFS.

Subfile: B
Country of Publ.: Spain
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Illustr.: tables
Descriptors: mining geology; ground water; automatic data processing; production control; engineering geology; movement; soil mechanics; mines; surveys; hydrogeology; underground installations; mining; finite element analysis; statistical methods; mathematical models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984581 80-25706

Application of seismic risk procedures to problems in microzonation

Anderson, J. G.; Trifunac, M. D.
Univ. South. Calif., Dep. Civ. Eng., Los Angeles, Calif., USA
Sherif, M. A. (chairperson)
Second International conference on microzonation for safer construction: research and application, San Francisco, Calif., United States, Nov. 26-Dec. 1, 1978
Proc. Int. Conf. Microzonation Safer Constr.-Res. Appl. 2, Vol. 1, 559-569p., 1978
17 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Illustr.: table, sketch maps
Latitude: N333000; N250000 Longitude: W1174000; W1190000
Descriptors: California; seismology; engineering geology; earthquakes; microzonation; seismic risk; United States; Los Angeles region; ground motion; strong motion; prediction; probability; seismicity; attenuation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984575 80-26101

Zonation for critical facilities based on two-level earthquakes
 Patwardhan, A. S.; Fillson, D. D.; Novack, R. L.; Woodward-Clyde Consult., San Francisco, Calif., USA; Wash. Public Power Supply Syst., USA
 Sherif, M. A. (chairperson)
 Second International conference on microzonation for safer construction: research and application, San Francisco, Calif., United States, Nov. 26-Dec. 1, 1978
 Proc. Int. Conf. Microzonation Safer Constr.-Res. Appl. 2, Vol. 1, 485-496p., 1978
 7 REFS.

Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 illus.: tables, sketch maps
 Descriptors: earthquakes; seismology; effects; seismic risk; zoning; engineering geology; design; ground motion; site exploration; power plants; marine platforms; economics; probability
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984564 80-25928

Landslides from the February 4, 1976 Guatemala earthquake: implications for seismic hazard reduction in the Guatemala City area
 Harp, E. L.; Wilson, R. C.; Wleczonek, G. F.; Keefer, D. K.; U. S. Geol. Surv., Menlo Park, Calif., USA
 Sherif, M. A. (chairperson)
 Second International conference on microzonation for safer construction: research and application, San Francisco, Calif., United States, Nov. 26-Dec. 1, 1978
 Proc. Int. Conf. Microzonation Safer Constr.-Res. Appl. 2, Vol. 1, 353-366p., 1978
 10 REFS.

Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 illus.: sketch maps
 Latitude: N133000 Longitude: W0883000; W0923000
 Descriptors: Guatemala; maps; engineering geology; cartography; slope stability; landslides; earthquakes; effects; Central America; seismic risk; Guatemala City region; rockslides; geologic hazards; prediction; probability; 1976; causes; distribution; intensity
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984412 80-25851

Etude pluviométrique sur le district de l'agglomération de Nancy en vue de l'amélioration des réseaux d'assainissement
 Pluviometric study of the Nancy metropolitan area: in view of the improvement in sanitation research
 Demassieux, L.; Laborde, J. P.; Marchand, A.

Connaitre le sous-sol un atout pour l'aménagement urbain.
 tome 1
 Collomb, F. (president)
 Collège National: Connaitre le sous-sol un atout pour l'aménagement urbain, Lyon, France, March 13-14, 1979
 Doc. B. R. G. M. 8, 565-576p., 1979
 9 REFS.

Subfile: B
 Country of Publ.: France
 Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: French Summary Languages: French
 illus.: block diag., tables, geol. sketch map
 Latitude: N480000; N493000 Longitude: E0070000; E0050000
 Descriptors: France; engineering geology; waste disposal; Europe; Nancy; discharge; mathematical models; Maurth-et-Moselle; hydrogeology; statistical analysis; hydraulics; human waste; sewage; effluents; site exploration; liquid waste
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984358 80-26173

A theoretical assessment of the screw plate test

Selvadurai, A. P. S.; Nicholas, T. J.
Carleton Univ., Dep. Civil Engin., Ottawa, Ontario, CAN

**Numerical methods in geomechanics; Volume three, 8.
Soil-structure-interaction (foundations); 9, Soil-structure-
interaction (retaining structures)**

Wittke, W. (EDITOR)
Third International conference on numerical methods in
geomechanics, Aachen, Germany, Federal Republic of, April
2-6, 1979

Publ.: A. A. Balkema
1245-1252p., 1979
19 REFS

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

Descriptors: soil mechanics; deformation; granular
materials; engineering geology; methods; numerical analysis
; loading; cohesionless materials; elasticity; finite
element analysis; statistical methods; displacements
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984355 80-26118

**A finite element method analysis of the earth anchor-soil
system**

Prieto-Portar, L. A.
Kaiser Engineers, Kaiser Center, Oakland, Calif., USA

**Numerical methods in geomechanics; Volume three, 8.
Soil-structure-interaction (foundations); 9, Soil-structure-
interaction (retaining structures)**

Wittke, W. (EDITOR)
Third International conference on numerical methods in
geomechanics, Aachen, Germany, Federal Republic of, April
2-6, 1979

Publ.: A. A. Balkema
1217-1225p., 1979
20 REFS

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

Descriptors: foundations; soil mechanics; numerical
analysis; engineering geology; methods; finite element
analysis; statistical methods; anchors; shear strength;
stress; displacements
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984352 80-26148

**Calculated and measured earth pressures on a deep basement
wall**

Roth, W. H.; Lee, K. L.; Crandall, L.
Dames and Moore, Los Angeles, Calif., USA; Univ. Calif., Los
Angeles, Calif., USA

**Numerical methods in geomechanics; Volume three, 8.
Soil-structure-interaction (foundations); 9, Soil-structure-
interaction (retaining structures)**

Wittke, W. (EDITOR)
Third International conference on numerical methods in
geomechanics, Aachen, Germany, Federal Republic of, April
2-6, 1979

Publ.: A. A. Balkema
1179-1191p., 1979
9 REFS

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

Descriptors: soil mechanics; earth pressure; testing;
engineering geology; methods; numerical analysis;
foundations; retaining walls; backfill; finite element
analysis; statistical methods; stress; strain; triaxial
tests; elasticity; Poisson's ratio; elastic constants;
shear strength

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984350 80-25696

Analytical determination of earth pressure due to compaction

Agmon, M. S.; Brown, C. B.
Univ. Maryland, College Park, Md. USA; Univ. Washington,
Seattle, Wash., USA

**Numerical methods in geomechanics; Volume three, 8.
Soil-structure-interaction (foundations); 9. Soil-structure-i-
interaction (retaining structures)**

Wittke, W. (EDITOR)
Third international conference on numerical methods in
geomechanics, Aachen, Germany, Federal Republic of, April
2-6, 1979

Publ. A. A. Balkema
1167-1174p., 1979

17 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

Illustr.: Descriptors: soil mechanics; earth pressure; bearing
capacity; engineering geology; methods; numerical analysis;
displacements; elasticity; finite element analysis;
statistical methods; cohesionless materials; stiff soils;
deformation; retaining walls; backfill; stress
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984349 80-25739

Finite element analysis of soil-pipeline interaction

Batta, G.; Cravero, M.; Pierangeli, P.; Rabagliati, U.;
Ramazzo, D.

**Numerical methods in geomechanics; Volume three, 8.
Soil-structure-interaction (foundations); 9. Soil-structure-i-
interaction (retaining structures)**

Wittke, W. (EDITOR)
Third international conference on numerical methods in
geomechanics, Aachen, Germany, Federal Republic of, April
2-6, 1979

Publ. A. A. Balkema
1153-1163p., 1979

10 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

Illustr.: tables
Descriptors: soil mechanics; theoretical studies;
bearing capacity; engineering geology; methods; numerical
analysis; finite element analysis; statistical methods;
mathematical models; models; elasticity; displacements;

anchors: loading
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984348 80-25830

**The prediction of the performance of flexible pavements
using stress analysis techniques**

Croney, P.

**Numerical methods in geomechanics; Volume three, 8.
Soil-structure-interaction (foundations); 9. Soil-structure-i-
interaction (retaining structures)**

Wittke, W. (EDITOR)
Third international conference on numerical methods in
geomechanics, Aachen, Germany, Federal Republic of, April
2-6, 1979

Publ. A. A. Balkema
1137-1151p., 1979

14 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

Illustr.: tables
Descriptors: highways; foundations; pavement;
engineering geology; methods; numerical analysis; loading;
elasto-plastic materials; finite element analysis;
statistical methods; failure; stress; soil mechanics;
Atterberg limits; pore pressure; triaxial tests
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

elasticity; failure
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984347 80-25806
Analysis of pavements and layered foundations by finite layer method
Choung, Y. K.; Fan, S. C.

Numerical methods in geomechanics; Volume three. 8. Soil-structure-interaction (foundations); 9. Soil-structure-l-interaction (retaining structures)

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
1129-1135p., 1979
12 REFS.

Subfile B
Country of Publ.: Netherlands

Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC
Languages: English

Descriptors: highways; foundations; base courses; engineering geology; methods; numerical analysis; finite element analysis; statistical methods; loading; elasticity; stress; displacements; shear stress
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984345 80-26267
Analytical model for drilled shaft foundations
Withiam, J. L.; Kulhawy, F. H.
D'Appolonia Consult. Eng., Pittsburgh, Pa., USA; Cornell Univ., Ithaca, N. Y., USA

Numerical methods in geomechanics; Volume three. 8. Soil-structure-interaction (foundations); 9. Soil-structure-l-interaction (retaining structures)

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
1115-1122p., 1979
25 REFS.

Subfile B
Country of Publ.: Netherlands

Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC
Languages: English

Descriptors: foundations; soil mechanics; piles; deformation; shafts; shear strength; engineering geology; methods; numerical analysis; finite element analysis; statistical methods; loading; stress; displacements; strain; Poisson's ratio; elastic constants; stiff clay;

984344 80-26188
Installation and performance of piled foundations
Smith, I. M.

Numerical methods in geomechanics; Volume three. 8. Soil-structure-interaction (foundations); 9. Soil-structure-l-interaction (retaining structures)

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
1107-1114p., 1979
16 REFS.

Subfile: B
Country of Publ.: Netherlands

Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC
Languages: English

Descriptors: foundations; piles; numerical analysis; engineering geology; methods; finite element analysis; statistical methods; loading; displacements; elasticity; failure; plasticity; strain; automatic data processing; computers; data handling
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

944343 80-26130

The effect of pile permeability on the stress changes around a pile driven into clay
Randolph, M. F.; Carter, J. P.

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)
Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema
1097-1105p., 1979

16 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

illus.
Descriptors: foundations; piles; stress; engineering geology; methods; numerical analysis; pore pressure; soil mechanics; loading; finite element analysis; statistical methods; permeability; deformation; elasticity; consolidation; plasticity; mathematical models; moduli
Shear modulus; elastic constants; failure
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

944342 80-26116

Analysis of laterally loaded piles

Prater, F. G.

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)
Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema
1087-1096p., 1979

23 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

illus., table
Descriptors: foundations; piles; stress; engineering geology; methods; numerical analysis; loading; finite element analysis; statistical methods; elasticity; bearing capacity; creep; mathematical models; models; displacements; soil mechanics; stiff soils; cyclic loading;

elastic modulus

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

944341 80-26151

A method for predicting the effect of piles on slope behaviour

Rowe, R. K.; Poulos, H. G.
Univ. Western Ontario, London, Ontario, CAN

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)
Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema
1073-1085p., 1979

10 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

illus., tables

Descriptors: foundations; piles; stress; engineering geology; methods; numerical analysis; slope stability; soft clay; soil mechanics; failure; finite element analysis; statistical methods; displacement; elastoplastic materials; loading; stiff clay; deformation

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984338 80-25737

An Eulerian formulation of the finite element method for predicting the stresses and pore water pressures around a driven pile

Banerjee, P. K.; Fathallah, R. C.

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)

Witke, W (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ A A Balkema

1053-1060p., 1979

24 REFS

Subfile B

Country of Publ: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus

Descriptors: foundations; piles; bearing capacity; engineering geology; methods; numerical analysis; finite element analysis; statistical methods; pore pressure; stress; soil mechanics; deformation; plasticity; loading; strain; elastoplastic materials

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984337 80-26240

An interaction study of strip-footing-sand-bed system by finite element method

Varadarajan, A.; Arora, K. R

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)

Witke, W (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ A A Balkema

1041-1051p., 1979

11 REFS

Subfile B

Country of Publ: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus

Descriptors: foundations; design; numerical analysis; engineering geology; methods; finite element analysis; statistical methods; soil mechanics; stress; strain; displacements; elasticity; triaxial tests; footings

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984335 80-26185

Application of probability theory to the finite element method in predicting settlements in soft Bangkok Clay

Sivandran, C.; Chiew, K.; Balasubramanian, A. S.

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)

Witke, W (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ: A. A. Balkema

1025-1032p., 1979

7 REFS

Subfile: B

Country of Publ: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus., tables

Latitude: N054500; N203000 Longitude: E1060000; E0963000

Descriptors: Thailand; engineering geology; foundations; methods; numerical analysis; finite element analysis; statistical methods; Asia; loading; soil mechanics; stiff soils; soft soils; shear strength; triaxial tests

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984334 80 26115

Numerical analysis of soil-structure interaction for a special case of heterogeneity
Popovic, M.; Sarac, D.

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)
Wittke, W. (EDITOR)

Third International Conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema
1017-1023p., 1979
4 REFS.

Subfile: B

Country of Publ.: Netherlands
Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.

Descriptors: engineering geology; methods; numerical analysis; foundations; soil mechanics; elastic materials; finite element analysis; statistical methods; stress; shear strength

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984337 80 26112

Computer supported development of a numerical method for calculating nonlinear load-settlement lines of shallow foundations and loading plates with a uniform distributed load
Pietzsch, C.

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)
Wittke, W. (EDITOR)

Third International Conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema
1007-1016p., 1979
23 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.

Descriptors: foundations; soil mechanics; automatic data processing; settlement; deformation; engineering geology; numerical analysis; consolidation; methods; loading; elasticity; stress; strain; finite element analysis; statistical methods; shear strength

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984329 80-25984

Determination of deformations of footing consisted of settling soils by finite element method
Klepikov, S. N.; Markov, A. I.

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)
Wittke, W. (EDITOR)

Third International Conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema

975-980p., 1979

Subfile: B

Country of Publ.: Netherlands

Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.

Descriptors: foundations; design; numerical analysis; engineering geology; methods; finite element analysis; statistical methods; soil mechanics; stress; moisture; deformation; piles; strain; stiff clay

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984328 80-25977

Effect of inclined rigid layer on behaviour of strip by finite element method

Khadilkar, B. S.; Patankar, M. V.

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)

Witke, W.(EDITOR)

Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ: A. A. Balkema

961-973p., 1979

12 REFS

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus., tables

Descriptors: foundations; soil mechanics; design; applications; numerical analysis; cohesionless materials; engineering geology; methods; finite element analysis; statistical methods; deformation; loading; elasticity; footings; stress

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984325 80-25923

Higher order Winkler model for soil-structure interaction

Hall, J. R., Jr.; Constantopoulos, J. V.; Michalopoulos, A.

P. Stone & Webster Eng. Corp., Boston, Mass., USA

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)

Witke, W.(EDITOR)

Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ: A. A. Balkema

933-938p., 1979

6 REFS

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

Descriptors: soil mechanics; models; numerical analysis; engineering geology; methods; elasticity; stiff clay; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984326 80-25924

The design of footings on cohesionless soil

Hamza, M.; Croney, P.

Numerical methods in geomechanics; Volume three, 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)

Witke, W.(EDITOR)

Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ: A. A. Balkema

939-951p., 1979

28 REFS

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus., tables

Descriptors: foundations; soil mechanics; design; applications; numerical analysis; cohesionless materials; engineering geology; methods; finite element analysis; statistical methods; loading; failure; plasticity; stress; deformation; mathematical models; breakwaters

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984323 80-25872

Effect of foundation embedment on stress and deformation distributions
Durgunoglu, H. T.

Numerical methods in geomechanics; Volume three. 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)
Witke, W. (EDITOR)

Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema
925-929p., 1979

4 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: foundations; design; numerical analysis; engineering geology; methods; stress; deformation; elasticity; finite element analysis; statistical methods; loading; soil mechanics
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984321 80-25798

Strip load on strain softening clay foundation
Cavounidis, S. C.; Maistros, J. G.

Numerical methods in geomechanics; Volume three. 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)
Witke, W. (EDITOR)

Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema
909-916p., 1979

10 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: foundations; automatic data processing; design; engineering geology; numerical analysis; methods; plasticity; clays; strain; elastoplastic materials; soil mechanics; mathematical models; stress; elasticity; finite element analysis; statistical methods; Young's modulus; elastic constants
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984320 80-25785

Numerical methods in calculations of stressed-strained states and consolidation of earth structures and foundations
Bugrov, A. K.; Ivanov, P. L.

Numerical methods in geomechanics; Volume three. 8. Soil-structure-interaction (foundations); 9. Soil-structure-interaction (retaining structures)
Witke, W. (EDITOR)

Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema
901-907p., 1979

10 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: foundations; design; numerical analysis; engineering geology; methods; dams; soil mechanics; elasticity; plasticity; deformation; loading; finite element analysis; statistical methods; creep; consolidation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984319 80-26229

Variational approach for the elimination of temporary boundary effect from finite element method

Uchi, K.; Sato, T.

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Witte, W. (EDITOR)

Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema

889-897p., 1979

109 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: engineering geology; methods; numerical analysis; rock mechanics; finite element analysis; statistical methods; earthquakes; mathematical models

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984317 80-26127

Rock bursting; a nonlinear dynamic contact problem

Rammerstorfer, F. G.; Fischer, D. F.; Zitz, A.

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Witte, W. (EDITOR)

Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema

871-878p., 1979

6 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: engineering geology; methods; numerical analysis; stress; rock bursts; finite element analysis; statistical methods; Young's modulus; elastic constants; plasticity

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984316 80-25940

Transient response of fractured rock systems to fluid injection; a finite element study

Wilber, H. M.; Taylor, R. L.; Witherspoon, P. A.

Univ. Calif., Berkeley, Calif., USA

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Witte, W. (EDITOR)

Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema

855-870p., 1979

27 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: waste disposal; methods; numerical analysis; engineering geology; rock mechanics; finite element analysis; statistical methods; fluid injection; stress

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984312 80 25713

Comparison of finite element and lumped parameter modelling for seismic response of reactor building foundation systems
Arockichamy, M.; Reddy, D. V.; Bobby, W.; Haldar, A. K.
Mem Univ. of Newfoundland, St. John's, Newfoundland, CAN

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
817-829p., 1979
28 REFS.

Subfile B
Country of Publ.: Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC

Languages English
illus., tables

Descriptors: nuclear facilities; foundations; design; numerical analysis; engineering geology; methods; finite element analysis; statistical methods; soil mechanics; strain; elastoplastic materials; mathematical models; models; shear modulus; elastic constants
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984310 80-25973

An analysis of progressive failure in rock slopes

Kawamoto, T.; Iakeda, N.

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
797-808p., 1979
10 REFS.

Subfile B
Country of Publ.: Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC

Languages English
illus., tables

Descriptors: slope stability; rock mechanics; numerical analysis; engineering geology; methods; embankments; soil mechanics; finite element analysis; statistical methods; plasticity; stress; strain; failure
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984309 80-25858

Stability analysis of rock slopes with respect to statistical aspects
Deutsch, R. R.

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
791-795p., 1979
11 REFS.

Subfile B
Country of Publ.: Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC

Languages English
illus., table

Descriptors: slope stability; rock mechanics; numerical analysis; engineering geology; methods; embankments; stress
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984307 80-26026

Limit equilibrium for nonlinear failure envelope and arbitrary slip surface
Maksimovic, M

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Wittke, W (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ: A. A. Balkema
759-767p. 1979

15 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.
Descriptors: slope stability; design; numerical analysis; engineering geology; methods; stress; triaxial tests; finite element analysis; statistical methods; shear stress; nonlinear analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984306 80-25930

A method of slope stability analysis and design of slope by linear predictor
Hasegawa, T

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Wittke, W (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ: A. A. Balkema
759-767p. 1979

5 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.
Descriptors: slope stability; design; numerical analysis; engineering geology; methods; stress; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984305 80-25776

STABL 2; a computer program for general slope stability analysis

Bouttrup, E.; Lovell, C. W.; Siegel, R. A.
Purdue Univ., West Lafayette, Indiana, USA; CH2M Hill, Boise, Idaho, USA

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Wittke, W (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ: A. A. Balkema
747-757p. 1979

7 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.
Descriptors: automatic data processing; slope stability; engineering geology; theoretical studies; circular failure; methods; numerical analysis; pore pressure; computer programs; soil mechanics; loading; failure; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984304 80-26284

Behaviour of an asphalt concrete core during dam construction and reservoir filling
Zamiat, J. W

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

773-740p., 1979

16 REFS

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.: tables

Descriptors: dams; foundations; embankments; engineering geology; methods; numerical analysis; slope stability; stress; strain; creep; finite element analysis; statistical methods; elasticity; plasticity; deformation; triaxial tests

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984303 80-26221

Numerical analyses of embankments over soft soils

Thamm, P. R

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

725-731p., 1979

12 REFS

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.
Descriptors: soil mechanics; theoretical studies; deformation; engineering geology; methods; numerical analysis; slope stability; mathematical models; stress; pore pressure; creep; strain; isotropic materials; permeability; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984302 80-26170

Undrained behaviour of soft clay under embankment loading
Sekiguchi, H.; Shibata, T.

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

717-724p., 1979

14 REFS

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.: tables

Descriptors: slope stability; theoretical studies; failure; engineering geology; methods; numerical analysis; clays; soil mechanics; foundations; elastoplastic materials; stress; strain; finite element analysis; statistical methods; pore pressure

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984298 80-25834

Underground stiffness and stress-strain behaviour of high embankments
Czapla, H.

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of. April 2-6, 1979

Publ. A. A. Balkema
699-708p. 1979

11 REFS

Subfile: P

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

illus.

Descriptors: slope stability; experimental studies; stress; engineering geology; methods; numerical analysis; stiff clay; strain; finite element analysis; statistical methods; triaxial tests

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984299 80-26237

Interaction between tunnel openings due to vibration effects
Valliapan, S.; Chandrasekaran, V.; Lee, I. K.

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of. April 2-6, 1979

Publ. A. A. Balkema
685-696p. 1979

8 REFS

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

illus.; table

Descriptors: tunnels; design; numerical analysis; engineering geology; methods; underground installations; finite element analysis; statistical methods; mathematical models; deformation

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984298 80-25990

Numerical method on underground containment of fission products at a hypothetical accident in underground nuclear power plant
Komada, H.; Hayashi, M.

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of. April 2-6, 1979

Publ.: A. A. Balkema
671-684p. 1979

16 REFS

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

illus.; tables

Descriptors: underground installations; nuclear facilities; design; pollution; numerical analysis; seepage; engineering geology; methods; rock mechanics; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984297 80-26176

Computation and analysis of probabilistic characteristics of stresses near underground opening in stochastically inhomogeneous rock mass
Sheinin, V. I.

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Witte, W. (EDITOR)
Third International conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
663-662p. 1979
18 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

Descriptors: underground installations; design; numerical analysis; engineering geology; methods; rock mechanics; elasticity; stress; statistical analysis; stochastic processes

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984296 80-26155

A design approach to dimensioning underground openings

Sakurai, S.; Ate, S.

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Witte, W. (EDITOR)
Third International conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
649-662p. 1979
4 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

illus., table

Descriptors: underground installations; design; numerical analysis; engineering geology; methods; rock mechanics; elasticity; elastoplastic materials; stress; tunnels; plasticity; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984295 80-25899

Viscoplastic finite element analysis of tunnel sections in grouted sand
Garfing, E.; Dubois, J.; Baumerfeld, P.

Numerical methods in geomechanics; Volume two, 4, Rock behavior; 5, Underground openings; 6, Embankments and slopes; 7, Dynamics

Witte, W. (EDITOR)
Third International conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
639-647p. 1979
6 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

illus.

Descriptors: tunnels; design; numerical analysis; engineering geology; methods; underground installations; finite element analysis; statistical methods; elastoplastic materials; stress; strain; failure

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984294 80-25893

Annular rock caverns for energy storage under Fourier expendable stress fields

Fuh, G. F.; Holmson, B. C.; Lapointe, P. R.
Univ Wisconsin, Dep Metall, and Min. Eng., Madison, Wisc., USA

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979
Publ. A. A. Balkema
627-638p., 1979
34 REFS.
Subfile B

Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
Illustrations: Table
Descriptors: underground installations; rock mechanics; design; theoretical studies; numerical analysis; deformation; engineering geology; methods; finite element analysis; statistical methods; shear modulus; elastic constants; tunnels; mathematical models; stress; failure, Fourier analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984292 80-25774

Influence of the strain-softening behaviour of rock masses on the stability of a tunnel

Rorsetto, M.; Ribacchi, R.

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979
Publ. A. A. Balkema
611-620p., 1979
15 REFS.
Subfile B

Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
Illustrations: tunnels; rock mechanics; design; theoretical studies; numerical analysis; deformation;

engineering geology; methods; underground installations; stress; strain; finite element analysis; statistical methods; plasticity; elasticity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984291 80-25694

Tunneling in fully-saturated soft sedimentary rocks

Adachi, T.; Mochida, Y.; Yamura, T.

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979
Publ. A. A. Balkema
599-610p., 1979
6 REFS.
Subfile: B

Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
Illustrations: tunnels; rock mechanics; design; theoretical studies; numerical analysis; deformation; engineering geology; methods; underground installations; creep; stress; plasticity; cyclic loading; triaxial tests; strain; pore pressure; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984290 80-26251

New Austrian tunneling method and finite elements
Wanninger, R

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
587-597p., 1979
12 REFS.

Subfile. B

Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.

Descriptors: tunnels; rock mechanics; design; theoretical studies; numerical analysis; deformation; engineering geology; methods; finite element analysis; statistical methods; soil mechanics; stress; underground installations; rock anchors
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984289 80-26211

Finite element analysis of the new Austrian tunneling method (NATM)
Swoboda, G.

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
581-586p., 1979
8 REFS.

Subfile. B

Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.

Descriptors: tunnels; design; numerical analysis; engineering geology; methods; finite element analysis; statistical methods; elasticity; plasticity; mathematical models; stress; soil mechanics
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984287 80-25866

The influence of construction work sequence on the stability of underground openings
Dolezalova, M.

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema
561-570p., 1979
13 REFS.

Subfile. B

Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.

Descriptors: underground installations; rock mechanics; design; theoretical studies; rock anchors; deformation; engineering geology; methods; numerical analysis; stress; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984286 80-26096

A finite element approach to strain softening and size effects in rock mechanics

Parisau, W. G.
Univ. Utah, Salt Lake City, Utah, USA

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema
545-558p., 1979
17 REFS.

Subtitle: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus.

Descriptors: rock mechanics; theoretical studies; deformation; methods; numerical analysis; finite element analysis; statistical methods; strain; stress; triaxial tests; plasticity; failure

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984284 80-25948

Non-linear analysis of the mechanical properties of joint and weak intercalation in rock

Hsu-Jun, K.

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema
523-532p., 1979
10 REFS.

Subtitle: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus.

Descriptors: rock mechanics; theoretical studies; deformation; stress; engineering geology; methods; numerical analysis; stress; mathematical models; models; finite element analysis; statistical methods; nonlinear analysis; mechanical properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984283 80-25868

Efficient three dimensional finite element analysis of stratified rocks

Dubois, J.; Obenauer, P. W.

Numerical methods in geomechanics; Volume two, 4. Rock behavior; 5. Underground openings; 6. Embankments and slopes; 7. Dynamics

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ.: A. A. Balkema
515-522p., 1979
9 REFS.

Subtitle: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus., tables

Descriptors: rock mechanics; models; numerical analysis; engineering geology; methods; finite element analysis; statistical methods; deformation; elastoplastic materials; plasticity; elasticity; three-dimensional models; layered materials

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

equations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984267 80-26036

A survey of the methods to calculate safety against collapse in soil and rock masses
Martins, J. B.; Matos, A. C.

Numerical methods in geomechanics; Volume one. 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Witke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

405-413p., 1979

ISBN 9061910404 41 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.

Descriptors: soil mechanics; theoretical studies; collapsible materials; engineering geology; methods; numerical analysis; finite element analysis; statistical methods; elastoplastic materials; porous materials; deformation; pore pressure; mathematical models; stress; strain; constitutive equations

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984272 80-25800

Incremental non-linear stress-strain relationship for soil and integration by finite element method
Chamberlain, R.; Renaud Lias, B.

Numerical methods in geomechanics; Volume one. 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Witke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

405-413p., 1979

ISBN 9061910404 16 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.

Descriptors: soil mechanics; models; numerical analysis; engineering geology; methods; finite element analysis; statistical methods; stress; strain; triaxial tests; nonlinear analysis; constitutive equations

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984268 80-26117

Mathematical modeling of soil stress-strain-strength behavior
Piecost, J. H.

Numerical methods in geomechanics; Volume one. 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Witke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

347-361p., 1979

ISBN 9061910404 13 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.; tables

Descriptors: soil mechanics; theoretical studies; cyclic loading; engineering geology; methods; numerical analysis; mathematical models; models; elastoplastic materials; stress; strain; plasticity; flow; elasticity; cohesionless materials; cohesive materials; triaxial tests; finite element analysis; statistical methods; constitutive

984260 89 2591R

A constitutive law of the rate type for soils

Gubbins, W. J. Polymers, D.

Numerical methods in geomechanics; Volume one, 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

717 329p., 1979

ISBN 9061910404 18 REFS.

Subfile B

Country of Publ.: Netherlands

Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.

Descriptors: soil mechanics; theoretical studies; consolidation; engineering geology; methods; numerical analysis; stress; strain; plasticity; deformation; finite element analysis; statistical methods; triaxial tests; creep; clay; constitutive equations

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984262 89 25831

The development of constitutive laws for soil using the distinct element method

Cornall, P. A.; Strick, D. D. L.

Numerical methods in geomechanics; Volume one, 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

282-288p., 1979

ISBN 9061910404 14 REFS

Subfile B

Country of Publ.: Netherlands

Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.

Descriptors: soil mechanics; models; numerical analysis; engineering geology; methods; stress; strain; mathematical models; finite element analysis; statistical methods; granular materials; constitutive equations

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984261 80 25726

Numerical algorithm for an elastoplastic constitutive equation with two yield surfaces

Aubry, D.; Des Croix, P.

Numerical methods in geomechanics; Volume one, 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

283-288p., 1979

ISBN 9061910404 9 REFS.

Subfile B

Country of Publ.: Netherlands

Doc. Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.

Descriptors: engineering geology; methods; numerical analysis; elasticity; plasticity; finite element analysis; statistical methods; stress; cyclic loading; constitutive equations

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

981260 80-26215

Finite element analysis of heat and moisture transfer in unsaturated soils
Yanagisawa, E.; Tanaka, M.

Numerical methods in geomechanics; Volume one, 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

275-280p., 1979

ISBN 9061910404 11 REFS.

Subtitle B

Country of Publ.: Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Languages English

illus., table

Descriptors: soil mechanics; models; numerical analysis; engineering geology; methods; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

981259 80-25879

Numerical simulation of the compaction-subsideance phenomena in a reservoir for two-phase nonisothermal flow conditions
Ertokun, I.; Firooz Ali, S. M.

Numerical methods in geomechanics; Volume one, 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

263-270p., 1979

ISBN 9061910404 13 REFS.

Subtitle B

Country of Publ.: Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Languages English

Descriptors: reservoirs; design; numerical analysis; engineering geology; methods; mathematical models; models; subsidence; underground installations; pore pressure; rock mechanics; deformation; elasticity; finite element analysis; statistical methods; simulation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984258 80-25974

Numerical modeling of seepage in earth and rockfill dams
Kazda, I.

Numerical methods in geomechanics; Volume one, 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Wittke, W. (EDITOR)
Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

257-261p., 1979

ISBN 9061910404 6 REFS.

Subtitle B

Country of Publ.: Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Languages English

illus.

Descriptors: dams; slope stability; seepage; embankments; numerical analysis; failure; engineering geology; methods; soil mechanics; mathematical models; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984257 80-25807

Time-space finite elements for unsaturated flow through porous media
 Cheung, V. K.; Tham, L. G.

Numerical methods in geomechanics; Volume one. 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Wittke, W. (EDITOR)
 Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of. April 2-6, 1979

Publ: A. A. Balkema

251-256p., 1979

ISBN 9061910404 11 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

illus., tables

Descriptors: engineering geology; methods; numerical analysis; finite element analysis; statistical methods; statistical analysis; porous media

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984255 80-25698

Finite element analysis of three-dimensional flows in saturated-unsaturated soils

Akai, K.; Ohnishi, Y.; Nishigaki, M.

Numerical methods in geomechanics; Volume one. 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of. April 2-6, 1979

Publ: A. A. Balkema

227-239p., 1979

ISBN 9061910404 21 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

illus.

Descriptors: soil mechanics; theoretical studies; permeability; engineering geology; methods; numerical analysis; finite element analysis; statistical methods; seepage; flow; porosity

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984256 80-25697

Coupled stress flow analysis in saturated-unsaturated medium by finite element method

Akai, K.; Ohnishi, Y.; Murakami, T.; Horita, M.

Numerical methods in geomechanics; Volume one. 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Wittke, W. (EDITOR)

Third international conference on numerical methods in geomechanics. Aachen, Germany, Federal Republic of. April 2-6, 1979

Publ: A. A. Balkema

241-249p., 1979

ISBN 9061910404 13 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

illus.

Descriptors: soil mechanics; theoretical studies; consolidation; engineering geology; methods; numerical analysis; finite element analysis; statistical methods; pore pressure; stress; strain; seepage; rock mechanics; porosity; permeability; flow

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984254 80-26195

Numerical methods for the settlement of Venice and layered soil deposits
Sparks, A. D. W.

Numerical methods in geomechanics; Volume one, 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws
Witke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

213-225p., 1979

ISBN: 9061910404 30 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

Illustrations: sketch maps
Descriptors: Italy; engineering geology; land subsidence; methods; numerical analysis; soil mechanics; Europe; no river; pore pressure; artesian waters; finite element analysis; statistical methods; mathematical models; models; aquifers; stress; triaxial tests; strain; permeability; settlement; foundations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984253 80-26187

Analysis of the consolidation of layered soils using the method of lines
Small, J. C.; Booker, J. R.

Numerical methods in geomechanics; Volume one, 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws
Witke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

201-211p., 1979

ISBN: 9061910404 16 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

Illustrations: table
Descriptors: soil mechanics; theoretical studies; consolidation; engineering geology; methods; numerical analysis; elastoplastic materials; finite element analysis; statistical methods; pore pressure; permeability; strain

984252 80-26154

Numerical model for undrained and consolidation deformations of soft clays
Sognseta, C.; Gallester, F.; Salnz, J. A.

Numerical methods in geomechanics; Volume one, 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws
Witke, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

191-200p., 1979

ISBN: 9061910404 14 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

Illustrations: table
Descriptors: soil mechanics; theoretical studies; consolidation; engineering geology; methods; numerical analysis; deformation; clays; mathematical models; models; foundations; strain; pore pressure; stress; plastic materials; finite element analysis; statistical methods; soft soils
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984251 80-25142

Nonlinear consolidation models for finite element computations
Richter, T.

Numerical methods in geomechanics; Volume one. 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws
Witte, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

181-190p, 1979

ISBN: 9061910404 14 REFS

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.

Descriptors: soil mechanics; theoretical studies; consolidation; engineering geology; methods; numerical analysis; finite element analysis; statistical methods; mathematical models; models; foundations; deformation; stress; strain; plasticity; elasticity; nonlinear analysis

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984247 80-25855

A one-dimensional finite element procedure for nonlinear consolidation

Desai, C. S.; Kuppuramy, T.; Koutsouras, D. C.; Janardhanam, R.

Numerical methods in geomechanics; Volume one. 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws
Witte, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

143-149p, 1979

ISBN: 9061910404 19 REFS

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.

Descriptors: soil mechanics; models; numerical analysis; engineering geology; methods; finite element analysis; statistical methods; stress; strain; pore pressure; nonlinear analysis; consolidation

984246 80-25727

Special algorithms for elastoplastic consolidation with finite elements
Aubry, D.; Huleux, J. C.

Numerical methods in geomechanics; Volume one. 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws
Witte, W. (EDITOR)

Third international conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

132-141p, 1979

ISBN: 9061910404 11 REFS

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.

Descriptors: soil mechanics; models; numerical analysis; engineering geology; methods; elasticity; finite element analysis; statistical methods; algorithms; flow; elastoplastic materials; pore pressure; cyclic loading; consolidation

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984243 80-26257

**Techniques in user oriented finite element programs for
geomechanical design practice**

Warner, H.; Arhusen, K.; Katz, C.

**Numerical methods in geomechanics; Volume one, 1.
Theoretical developments; 2. Flow and consolidation; 3.
Constitutive laws**

Wittke, W (EDITOR)
Third international conference on numerical methods in
geomechanics. Aachen, Germany, Federal Republic of, April
2-6, 1979

Publ.: A. A. Balkema
103-111p., 1979
ISBN 9061910404 10 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Languages English

illus.

Descriptors: engineering geology; automatic data
processing; methods; numerical analysis; design; finite
element analysis; statistical methods; computer programs

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984241 80-26214

A relaxation stress-deformation finite element program

Stavits Norman, A.; Kovacic, D.

**Numerical methods in geomechanics; Volume one, 1.
Theoretical developments; 2. Flow and consolidation; 3.
Constitutive laws**

Wittke, W (EDITOR)
Third international conference on numerical methods in
geomechanics. Aachen, Germany, Federal Republic of, April
2-6, 1979

Publ.: A. A. Balkema
89-91p., 1979
ISBN 9061910404 4 REFS.

Subfile E

Country of Publ.: Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Languages English

illus.

Descriptors: engineering geology; methods; numerical
analysis; finite element analysis; statistical methods;
deformation

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984240 80-26132

**Three-dimensional continuum-finite element formulation for
dynamic impedance evaluation of arbitrarily shaped foundations**
Ray, D.

**Numerical methods in geomechanics; Volume one, 1.
Theoretical developments; 2. Flow and consolidation; 3.
Constitutive laws**

Wittke, W (EDITOR)
Third international conference on numerical methods in
geomechanics. Aachen, Germany, Federal Republic of, April
2-6, 1979

Publ.: A. A. Balkema

77-88p., 1979

ISBN 9061910404 8 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type BOOK; CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Languages English

illus.

Descriptors: foundations; models; numerical analysis;
engineering geology; methods; finite element analysis;
statistical methods

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984239 80 26110

Three-dimensional geometric and material nonlinearities analysis of some problems in geomechanics

Witke, W. (EDITOR)
Third International Conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Numerical methods in geomechanics; Volume one. 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Witke, W. (EDITOR)
Third International Conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

15 29p. 1979

ISBN 9061910404 17 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC Languages: English illus.

Descriptors: engineering geology; methods; numerical analysis; foundations; piles; anchors; finite element analysis; statistical methods; plasticity; underground installations; tunnels
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984234 80 25815

On tractable constitutive relations and numerical procedures for structural analysis in masses of geological materials

Clear, W. P.; Eathen, K. J.

Numerical methods in geomechanics; Volume one. 1. Theoretical developments; 2. Flow and consolidation; 3. Constitutive laws

Witke, W. (EDITOR)
Third International Conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

15 29p. 1979

ISBN 9061910404 43 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC Languages: English illus.

Descriptors: engineering geology; methods; numerical analysis; rock mechanics; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

984232 80 25662

Numerical methods in geomechanics; proceedings of the Third international conference on numerical methods in geomechanics

Witke, W. (EDITOR)

Third International Conference on numerical methods in geomechanics, Aachen, Germany, Federal Republic of, April 2-6, 1979

Publ. A. A. Balkema

1252p. 1979

ISBN 9061910404 Ed. 3

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: COLLECTIVE Languages: English Note: In three volumes; individual articles are cited separately. illus.

Descriptors: symposia; engineering geology; numerical analysis; rock mechanics; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

983644 80 25669

Resilient based flexible pavement design procedure for secondary roads

Figuerola, J. L.

Univ. of Illinois, Urbana, Ill., USA

334p. 1979

Subfile B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC Languages: English

Availability: Univ. Microfilms
Descriptors: soil mechanics; highways; elasticity; materials; properties; elastic properties; pavement design; flexibility; loading; theoretical studies; mathematical models; models; automatic data processing; engineering geology; finite element analysis; statistical methods; stress; failure; computer programs; ILLI-PAVE; shear strength; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

983612 80-25667

Prediction and statistical analysis of settlements of shallow foundations on sand

Eliaz, M. R.
 Univ. of Pittsburgh, Pittsburgh, Pa., USA
 15Apr. 1979

Subfile B

Degree Level: Doctoral
 Country of Publ.: United States
 Doc Type: THESES Bibliographic Level: MONOGRAPHIC
 Languages: English
 Availability: Univ. Microfilms
 Descriptors: soil mechanics; foundations; settlement; prediction; sand; elastic settlements; statistical analysis; mathematical models; design; elasticity
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

983640 80-25663

An integrated study of a wastewater disposal plan

Atshar, A.
 Univ. of California, Davis, Calif., USA
 21Apr. 1977

Subfile B

Degree Level: Doctoral
 Country of Publ.: United States
 Doc Type: THESES Bibliographic Level: MONOGRAPHIC
 Languages: English
 Availability: Univ. Microfilms
 Latitude: N380500; W1222000; Longitude: W1222000; W1223000
 Descriptors: California; engineering geology; waste disposal; Sonoma County; United States; Central California; San Francisco Bay region; liquid waste; waste water; statistical analysis; automatic data processing
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

983614 80-25673

Prediction of the geotechnical properties of late Quaternary Mississippi Delta deposits

Holwick, S. J., Jr.
 Texas A&M Univ., College Station, Tex., USA
 23Apr. 1979

Subfile B

Degree Level: Doctoral
 Country of Publ.: United States
 Doc Type: THESES Bibliographic Level: MONOGRAPHIC
 Languages: English
 Availability: Univ. Microfilms
 Latitude: N280000; N280000; Longitude: W0883000; W0880000
 Descriptors: Louisiana; soil mechanics; Gulf of Mexico; Gulf coastal plain; sediments; engineering geology; materials; properties; marine installations; mechanical

983244 80-25770

Peak acceleration, velocity, and displacement from strong-motion records

Roore, D. M.; Joyner, W. B.; Oliver, A. A., III; Page, R. A.
 U. S. Geol. Surv., Menlo Park, Calif., USA
 Seismol. Soc. Am., Bull., 70, 1, 305-321p., 1980
 CODEN: BSSAAP ISSN: 0037-1106 28 REFS

Subfile B

Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English

Latitude: N3000000; N650000 Longitude: W1000000; W1600000
 Descriptors: North America; California; seismology; engineering geology; earthquakes; geologic hazards; strong motion; United States; accelerograms; ground motion; magnitude; displacements; statistical analysis; structures
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

982769 80 26032

Fracture leakage in Cretaceous shales and its significance for underground waste disposal

Newell, J. F.; Breckenridge, J. D.
U. S. Geol. Surv., Reston, Va., USA
The Geological Society of America, 92nd annual meeting,
San Diego, Calif., United States, Nov. 5-8, 1979
Geol. Soc. Am. Abstr. Programs 11 7, 486p., 1979
CODEN: GSAABG ISSN: 0016-7592
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Latitude: N400000 Longitude: W1050000; W1200000
Descriptors: Western Interior; ground water; fractures; engineering geology; surveys; distribution; waste disposal; Cretaceous; Pierre Shale; Dakota Formation; Cretaceous; Mesozoic; North America; aquifers; contamination; elastic rocks; statistical analysis; radioactive waste; storage; underground installations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

982730 80 26252

Statistical characterization of rock crack patterns

Warren, H. E.; Humphreys, J. Tiffany, W.
Univ. Calif., Inst. Geophys. and Planet. Phys., Los Angeles, Calif., USA
American Geophysical Union, 1979 fall annual meeting, San Francisco, Calif., United States, Dec. 3-7, 1979
Geol. Soc. Am. Abstr. Programs 11 7, 486p., 1979
CODEN: GSAABG ISSN: 0016-7592
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Latitude: N435000 Longitude: W0710500; W0711500
Descriptors: rock mechanics; deformation; cracks; fracture; fracture distribution; ultrastructure; elastic properties; granite; granite-granodiorite family; New Hampshire; United States; White Mountains; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

982784 80 26226

Characterization and similarity testing of the mechanical properties of rocks

Warren, H. E.; Humphreys, J.
Univ. Calif., Inst. Geophys. and Planet. Phys., Los Angeles, Calif., USA

American Geophysical Union, 1979 fall annual meeting, San Francisco, Calif., United States, Dec. 3-7, 1979
Geol. Soc. Am. Abstr. Programs 11 7, 486p., 1979
CODEN: GSAABG ISSN: 0016-7592
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Latitude: N435000 Longitude: W0710500; W0711500
Descriptors: rock mechanics; materials; properties; mechanical properties; Carrol County; materials; properties; elastic properties; cluster analysis; statistical methods; ultrastructure; granite; granite-granodiorite family; cores; indicators; textures; quantitative methods; New Hampshire; United States; Conway; White Mountains
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

981442 80-21240

Variable modulus model for inelastic finite element analysis

Al-Shawaf, T. D.
Univ. of California, Berkeley, Calif., USA
141p., 1979
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Descriptors: automatic data processing; soil mechanics; engineering geology; theoretical studies; models; mathematical models; finite element analysis; statistical methods; strain; shear strength; engineering properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

981101 80-21286

Discriminant analysis as a possible tool in landslide investigations

Reynolds, J. P.
Cleveland State Univ., Dep. Geol. Sci., Cleveland, Ohio, USA
Environ. Sci. Process. 4 3, 267-273p., 1979
CODEN: ESPROF ISSN: 0360-1269 15 REFS
Subfile B
Country of Pub: United Kingdom
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables, block diag.
Descriptors: landslides; slope stability; failure; movement; West Virginia; soil mechanics; prediction; engineering geology; mine spoils; discriminant analysis; statistical analysis
Section Headings: 23 (SURFICIAL GEOLOGY, GEOMORPHOLOGY)

981109 80-21565

On joint/interface elements and associated problems of numerical ill-conditioning

Chakraverty, S. C.; Alimba, M.
Int. J. Numer. Anal. Methods Geomech. 3 3, 293-306p., 1979
Int. J. Numer. Anal. Methods Geomech. 3 3, 293-306p., 1979
Subfile B
Country of Pub: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: engineering geology; methods; finite element analysis; mathematical models; statistical methods; joint elements; interface elements; mathematical geology
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

981102 80-21400

Elastic-plastic analysis of geotechnical problems by mathematical programming

Chakraverty, S. C.; Alimba, M.
Int. J. Numer. Anal. Methods Geomech. 3 4, 381-401p., 1979
Int. J. Numer. Anal. Methods Geomech. 3 4, 381-401p., 1979
Subfile B
Country of Pub: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: soil mechanics; rock mechanics; materials; mathematical analysis; elastoplastic materials; numerical analysis

981101 80-21286

Optimal lower bound of passive earth pressure using finite elements and non-linear programming

Basudhar, P. K.; Valsangkar, A. J.; Madhav, M. R.
Int. J. Numer. Anal. Methods Geomech. 3 4, 367-379p., 1979
ISSN: 0360-1269 6 REFS
Subfile B
Country of Pub: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: soil mechanics; earth pressure; finite element analysis; statistical methods; plasticity; Mohr-Coulomb law; loading; numerical analysis; stress; bearing capacity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

980400 80-21327

Diffusion analogy for some stress computations

Chakraverty, S. C.; Alimba, M.
Am. Soc. Civ. Eng., Proc., J. Geotech. Eng. Div. 105 G111, 1337-1342p., 1979
CODEN: AUGEB6 ISSN: 0093-6405 5 REFS
Subfile B
Country of Pub: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: soil mechanics; methods; statistical methods; diffusion; stress; granular materials
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

AD-A136 355

COMPENDIUM OF ABSTRACTS ON STATISTICAL APPLICATIONS IN
GEOTECHNICAL ENGIN..(U) ARMY ENGINEER WATERWAYS
EXPERIMENT STATION VICKSBURG MS GEOTE..

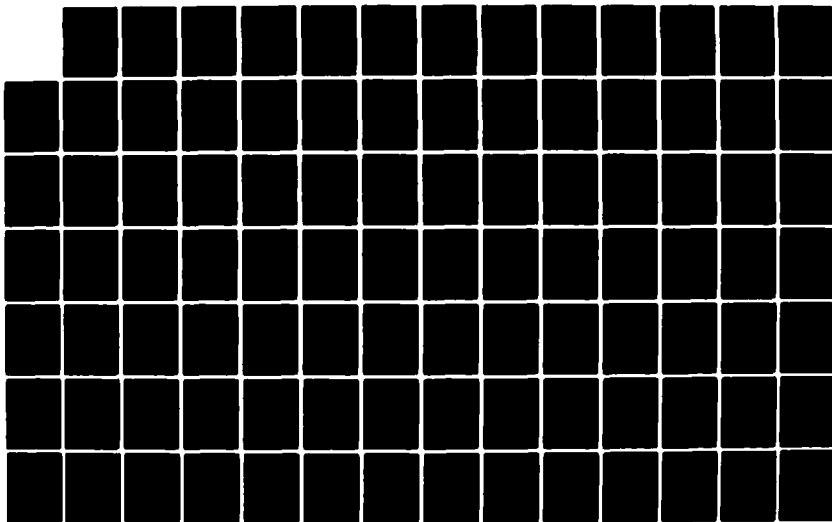
56

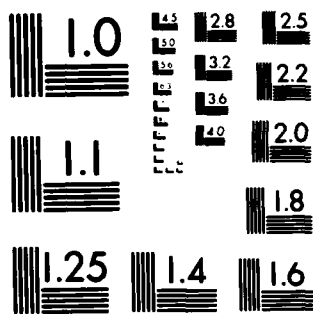
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F/G 13/2

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MICROCOPY RESOLUTION TEST CHART
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980480 80-21396

Pore distribution and permeability of silty clays

Garcia-Renquechea, J.; Lovell, C. W.; Altschaeffl, A. G.
Geotech. Eng., Portland, Oreg., USA; Purdue Univ., Dep. Civ.
Eng., USA

Am. Soc. Civ. Eng., Proc., J. Geotech. Eng. Div. 105: GT7,
839-856p., 1979

CODEN: AIGEB6 ISSN: 0093-6405 39 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English
illus., tables

Descriptors: *soil mechanics; *experimental studies;
permeability; clay; clastic sediments; compaction;
porosity; size distribution; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

980472 80-21642

Probabilistic evaluation of penetration resistances

Lang, W. H.
Univ. Ill., Urbana-Champaign, Dep. Civ. Eng., Urban, Ill.,
USA

Am. Soc. Civ. Eng., Proc., J. Geotech. Eng. Div. 105: GT10,
1173-1189p., 1979

CODEN: AIGEB6 ISSN: 0093-6405 7 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English
illus., table

Descriptors: *soil mechanics; *marine installations;
methods; construction; penetration; gravity platforms;
offshore; marine platforms; statistical analysis; site
exploration; design; mathematical models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

980463 80-21296

Probabilistic procedures for peak ground motions

Blume, J. A.; Kiremidjian, A. S.
Am. Soc. Civ. Eng., Proc., J. Struct. Div. 105: ST11,
2293-2309p., 1979

CODEN: JSDEAG 24 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English
illus., tables, sketch map

Latitude: N340000; N380000 Longitude: W1190000; W1230000
Descriptors: *California; engineering geology; nuclear
facilities; earthquakes; ground motion; statistical methods

Seismic risk; site exploration; United States;
evaluation; faults; frequency; mathematical models; models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

979777 80-21354

Finite element analysis of seismic soil-structure interaction effects for nuclear power plants

Dezfulian, H.

CENTO seminar on recent advances in earthquake hazard minimization

Kisiali, A. S. (EDITOR)

CENTO seminar on recent advances in earthquake hazard
minimization, Tehran, Nov., 1976
CENTO Sci. Rep. 27, 284-299p., 1976
18 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus., charts

Descriptors: *nuclear facilities; seismic response;
design; seismic risk; structures; mathematical models;
models; finite element analysis; statistical methods; soil
mechanics; three-dimensional models; two-dimensional models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

979776 80-21678
Seismic analysis and design of nuclear power plant structures
 Varner, P. I.; Jhaveri, D. P.
 CENCO seminar on recent advances in earthquake hazard minimization
 Kislali, A. S. (EDITOR)
 CENCO seminar on recent advances in earthquake hazard minimization. Tehran, Nov., 1976
 CENCO Sci. Rep. 27. 246-283p., 1976
 32 REFS.
 Subfile: B
 Country of Publ.: International
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 illus., tables
 Descriptors: United States; engineering geology; nuclear facilities; earthquakes; design; structures; seismic risk; spectral analysis; soil mechanics; deformation; stress; finite element analysis; statistical methods; mathematical models; models; seismic response
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978761 80-21656
Recent status of earthquake prediction research in Taiwan
 Tsai, Y. B.
 Advisory meeting on earthquake engineering and landslides
 Penzien, J. (chairperson); Sheng-Taur, M. (chairperson); Yang, Z. (chairperson)
 Advisory meeting on earthquake engineering and landslides. Taipei, Taiwan, Province of, 29 Aug.-2 Sep. '77
 Publ.: Natl. Sci. Found. 336p., 1977
 Subfile: B
 Country of Publ.: United States
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 Descriptors: earthquakes; prediction; methods; Taiwan; Asia; engineering geology; statistical analysis; zoning; plate tectonics
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978746 80-21450
Strong earthquake ground motion
 Jennings, P. C.
 Cal. Inst. Tech., Dep. Appl. Mech., Pasadena, Calif., USA

Advisory meeting on earthquake engineering and landslides
 Penzien, J. (chairperson); Sheng-Taur, M. (chairperson); Yang, Z. (chairperson)
 Advisory meeting on earthquake engineering and landslides. Taipei, Taiwan, Province of, 29 Aug.-2 Sep. '77
 Publ.: Natl. Sci. Found. 15-26p., 1977
 14 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 illus.
 Descriptors: California; engineering geology; earthquakes; United States; instruments; velocity; acceleration; displacements; statistical analysis; seismographs; geologic hazards; strong motion; ground motion
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978534 80-21198
Hydrology
 Nagy, I. V.
 International post-graduate course on the principles and methods of engineering geology
 Konda, J. (director)
 Publ.: Hung. Geol. Inst. UNESCO 4, 195p., 1975
 15 REFS.
 Subfile: B
 Country of Publ.: France
 Doc Type: BOOK Bibliographic Level: MONOGRAPHIC
 Languages: English
 illus., tables
 Descriptors: hydrology; education; cycles; engineering geology; evaporation; rock mechanics; hydrogeology; water resources; precipitation; dams; reservoirs; flow regime; economics; environmental geology; hydraulics; water supply; statistical analysis; land use
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978305 80 21332

Two- and three-dimensional dynamic analysis
Christiansen, J. T.; Roesset, J. M.; Desai, C. S.
Stone & Webster Eng. Corp., Boston, Mass., USA; Mass. Inst.
Technol., USA

Numerical methods in geotechnical engineering
Desai, C. S. (EDITOR); Christiansen, J. T. (EDITOR)

Publ.: McGraw-Hill Book Co.

683-718p., 1977

ISBN: 0070165424 25 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

Illustrations: 1 sects.
Descriptors: engineering geology; materials; properties
; dynamic properties; materials; properties; two-dimensional
models; models; three-dimensional models; elastic materials
; foundations; soil mechanics; rock mechanics; linear
materials; earthquakes; effects; frequency domain; damping
; nonlinear materials; wave trains; examples; finite
element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978304 80-21599

Soil amplification of earthquakes

Roeset, J. M.

Mass. Inst. Technol., Dep. Civ. Eng., Cambridge, Mass., USA

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christiansen, J. T. (EDITOR)

Publ.: McGraw-Hill Book Co.

639-682p., 1977

ISBN: 0070165424 27 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

Illustrations: 1 tables
Descriptors: earthquakes; soil mechanics; effects
materials; properties; dynamic properties; amplification
amplitude; frequency; ground motion; wave equation
analysis; three-dimensional models; models; linear
materials; SH-waves; layered materials; homogeneous media;
elastic materials; Fourier analysis; accelerograms
response; finite difference analysis; mathematical models
finite element analysis; statistical methods; materials
properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978303 80-21674

Static analysis for underground openings in jointed rock
Witte, W.

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christiansen, J. T. (EDITOR)

Publ.: McGraw-Hill Book Co.

589-638p., 1977

ISBN: 0070165424 19 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

Illustrations: 1 tables, 1 sects., 1 block diag.
Descriptors: tunnels; rock mechanics; construction
applications; joints; fractures; discontinuities; stress
displacements; models; Young's modulus; elastic constants
mechanical properties; Mohr envelope; Wehr; examples
Black Forest; West Germany; Germany; Europe; stability
tensile strength; shear strength; uniaxial tests; finite
element analysis; statistical methods; extensometers
Altmühl Tunnel; case studies; Breun
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978302 80-21634

Numerical and physical modeling

Smith, I. M.

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christiansen, J. T. (EDITOR)

Publ.: McGraw-Hill Book Co.

556-588p., 1977

ISBN: 0070165424 69 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

Illustrations: 1 sects.

Descriptors: engineering geology; techniques; models
physical models; mathematical models; applications; failure
; slope stability; foundations; consolidation; rates
settlement; retaining walls; piles; stability; marine
installations; platforms; soil mechanics; deformation
finite element analysis; statistical methods; elastoplastic
materials; clays
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978300 80-21335

Static analysis of earth retaining structures

Crough, G. W.; Tsai, Y.
Stanford Univ., Dep. Civ. Eng., Stanford, Calif., USA; Duke Univ., USA

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christian, J. T. (EDITOR)
Publ: McGraw-Hill Book Co.
508-527p., 1977
ISBN: 0070165424 64 REFS.

Country of Publ.: United States
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
illus., tables, sects.

Descriptors: foundations; soil mechanics; stability; deformation; retaining walls; numerical analysis; mathematical methods; finite difference analysis; finite element analysis; statistical methods; stress; elastic materials; linear materials; shear stress
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978298 80-21510

Foundations in expansive soils

Lytton, R. L.
Tex. A&M Univ., Dep. Civ. Eng., College Station, Tex., USA

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christian, J. T. (EDITOR)
Publ: McGraw-Hill Book Co.
427-457p., 1977
ISBN: 0070165424 41 REFS.

Country of Publ.: United States
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
illus., tables, sects.

Descriptors: foundations; soil mechanics; stability; materials; properties; expansive materials; design; materials; properties; clays; moisture; permeability; elasticity; stress; strain; bearing capacity; shear modulus; elastic constants; numerical analysis; finite difference analysis; finite element analysis; statistical methods; piles
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978297 80-21330

Two- and three-dimensional consolidation

Christian, J. T.
Strom & Webster Eng. Corp., Boston, Mass., USA

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christian, J. T. (EDITOR)
Publ: McGraw-Hill Book Co.
399-426p., 1977
ISBN: 0070165424 29 REFS.

Country of Publ.: United States
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
illus., sects.

Descriptors: soil mechanics; settlement; numerical analysis; consolidation; two-dimensional models; models; three-dimensional models; mathematical methods; elasticity; stress; strain; isotropic materials; Lamé's constants; shear modulus; elastic constants; finite element analysis; statistical methods; pore pressure; examples
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978296 80-21614

One-dimensional consolidation

Schiffman, R. L.; Arya, S. K.
Univ. Colo., Dep. Civ. Eng., Boulder, Colo., USA; Univ. Calif., San Diego, USA

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christian, J. T. (EDITOR)
Publ: McGraw-Hill Book Co.
364-398p., 1977
ISBN: 0070165424 37 REFS.

Country of Publ.: United States
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
illus., tables

Descriptors: soil mechanics; settlement; layered materials; materials; properties; consolidation; one-dimensional models; models; loading; clays; numerical analysis; homogeneous media; pore pressure; finite difference analysis; mathematical methods; computer programs; PROGRS; finite element analysis; statistical methods; FECON 1; examples; Fortran; stress
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978295 80-21580

Settlement of pile foundations
Poulos, H. G.

Numerical methods in geotechnical engineering
Desai, C. S. (EDITOR); Christian, J. T. (EDITOR)

Publ: McGraw-Hill Book Co.

326-363p., 1977

ISBN: 0070165424 36 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *foundations; *soil mechanics ; piles;
settlement ; loading; models; numerical analysis;
deformation; displacements; layered materials; elastic
materials; finite element analysis; statistical methods;
examples

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978294 80-21589

Laterally loaded piles

Reese, L. C.; Desai, C. S.

Univ. Tex. Austin, Dep. Civ. Eng., Austin, Tex., USA; Va.

Polytech. Inst. and State Univ., USA

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christian, J. T. (EDITOR)

Publ: McGraw-Hill Book Co.

297-325p., 1977

ISBN: 0070165424 38 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus., table, sects.

Descriptors: *foundations; *soil mechanics ; piles;
deformation ; shear; loading; iterative techniques;
mathematical methods; response; soft clay; stiff clay;
sand; clastic sediments; stress; strain; numerical
analysis; finite difference analysis; finite element
analysis; statistical methods; examples

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978291 80-21329

Shallow foundations

Christian, J. T.

Stone & Webster Eng. Corp, Boston, Mass., USA

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christian, J. T. (EDITOR)

Publ: McGraw-Hill Book Co.

211-234p., 1977

ISBN: 0070165424 29 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: *foundations; *soil mechanics ; stability;
deformation ; shallow foundations; models; finite element
analysis; statistical methods; numerical analysis; stress;
footings; displacements; elastic moduli; applications;
shear modulus; elastic constants; SHANSEP

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978289 80-21402

Finite element analysis for discontinuous rocks

Goodman, R. E.; St. John, C.

Univ. Calif., Dep. Civ. Eng., Berkeley, Calif., USA; Univ.
Minn., USA

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christian, J. T. (EDITOR)

Publ: McGraw-Hill Book Co.

148-175p., 1977

ISBN: 0070165424 22 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus., tables, sects.

Descriptors: *rock mechanics ; materials; properties ;
discontinuities; materials; properties; finite element
analysis; statistical methods; joints; fractures;
mechanical properties; compression; shear; strength;
iterative techniques; tensile strength; stiffness; shear
strength

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978288 80-21684

Viscoplasticity: a generalized model for description of soil behavior

Zienkiewicz, O. C.; Humpheson, C.

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christian, J. T. (EDITOR)

Publ.: McGraw-Hill Book Co.

116-147p., 1977

ISBN: 0070165424 30 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus., tables, sects.

Descriptors: soil mechanics ; materials; properties ; viscoplasticity; materials, properties; models; porous materials; deformation; stress; loading; elastoviscoplastic materials; Mohr envelope; finite element analysis; statistical methods; consolidation; examples

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978286 80-21320

Introduction, numerical methods, and special topics

Chandrakant, S.; Christian, J. T.

Va. Polytech. Inst. and State Univ., Dep. Civ. Eng., Blacksburg, Va., USA; Stone & Webster Eng. Corp., USA

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christian, J. T. (EDITOR)

Publ.: McGraw-Hill Book Co.

1-64p., 1977

ISBN: 0070165424 107 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus., sects.

Descriptors: engineering geology ; techniques ; numerical analysis; methods; finite element analysis; statistical methods; finite difference analysis; mathematical methods; examples; discontinuities; nonlinear analysis; propagation; Fourier analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

978285 80-21163

Stone & Webster Eng. Corp., USA

Numerical methods in geotechnical engineering

Desai, C. S. (EDITOR); Christian, J. T. (EDITOR)

Va. Polytech. Inst. and State Univ., Dep. Civ. Eng., Blacksburg, Va., USA

Publ.: McGraw-Hill Book Co.

783p., 1977

ISBN: 0070165424 850 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: MONOGRAPHIC

Languages: English

Note: Individual papers are cited under the separate authors illus.

Descriptors: engineering geology; reduction; mathematical geology ; textbooks ; college-level education; numerical analysis; methods; mathematical methods; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

976181 80-16911

Autoregressive parameters for a suite of strong-motion accelerograms

Jurkevics, A.; Ulfrych, T. J.

Univ. B.C., Dep. Geophys. and Astron., Vancouver, B.C., CAN

Seismol. Soc. Am., Bull. 69: 6, 2025-2036p., 1979

CODEN: BSSAAP ISSN: 0037-1106 15 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., table

Latitude: N323000; N420000 Longitude: W1141500; W1243000

Descriptors: California; seismology ; engineering geology ; earthquakes ; strong motion; United States; Southern California; autoregression; statistical methods; spectral analysis; accelerograms; ground motion; epicenters; geologic hazards

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

975136 80-16839

Finite element study of mine roadways

Fama, M. E.; Parton, I. M.

The New Zealand Geomechanics Society; papers presented to the Symposium on tunnelling in New Zealand

Olsen, A. J. (COMPILER); Riddolls, B. W. (COMPILER)

Tunnelling in New Zealand, Hamilton, New Zealand, 1977
N. Z. Inst. Eng., Proc. Tech. Groups 3: 3(G), 3.39-3.52
p., 1977

5 REFS.

Subfile: B
Country of Publ.: New Zealand
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English

illus., tables
Latitude: S473000 Longitude: E1783000; E1863000
Descriptors: New Zealand; engineering geology; tunnels;
Australia; coal measures; theoretical studies; finite
element analysis; statistical methods; shaft pillars;
stress, in situ; Young's modulus; elastic constants
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

975031 80-17073

Modeling of the Nobi ground water basin to solve the subsidence problem

Ueshita, K.; Itabashi, K.; Tanahashi, H.; Sato, T.

Proceedings of the Specialty session on geotechnical engineering and environmental control

Moh, Z. C. (EDITOR)

Ninth international conference on soil mechanics and foundation engineering, Tokyo, Japan, July 1977
Int. Conf. Soil Mech. Found. Eng., Proc. 9, 465-480p., 1977

CODEN: PCSMB2 4 REFS.

Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English

illus., sect., sketch maps
Latitude: N340000 Longitude: E1380000; E1340000
Descriptors: Japan; ground water; hydrogeology; surveys;
engineering geology; land subsidence; Asia; Nobi Plain;
wells; pumping; models; water balance; finite element
analysis; statistical methods; three-dimensional models;
1961-1973; piezometers; levels; aquifers; Young's modulus;
elastic constants; storage; mathematical models; Honshu
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

975025 80-17069

Mineralogical and geotechnical controls on the storage and use of British coal-mine wastes

Taylor, R. K.; Cobb, A. E.

Proceedings of the Specialty session on geotechnical engineering and environmental control

Moh, Z. C. (EDITOR)

Ninth international conference on soil mechanics and foundation engineering, Tokyo, Japan, July 1977
Int. Conf. Soil Mech. Found. Eng., Proc. 9, 373-388p., 1977

CODEN: PCSMB2 12 REFS.

Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English

illus., tables
Latitude: N500000 Longitude: E0013000; W0063000
Descriptors: England; engineering geology; waste disposal; Europe; coal; organic residues; spoils;
settling ponds; mineral composition; engineering properties;
consolidation; shear strength; statistical analysis;
chemical composition; mechanical properties; clay minerals;
sheet silicates; silicates
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

974416 80-16917

Guiding principles for the preparation of hydrological maps for building
Karacsonyi, S.; Bernath, Z.

IAEG symposium: Engineering geological mapping for planning, design and construction in civil engineering

Dezmann, W. R. (Chairperson)
IAEG symposium: Engineering geological mapping for planning, design and construction in civil engineering.
Newcastle-upon-Tyne, United Kingdom, Sept. 3-6, 1979
Int. Assoc. Eng. Geol., Bull., 19, 237-241p., 1979

CODEN: BIEGR6

Subfile: B

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

illus., sects., geol. sketch map
Descriptors: maps; engineering geology; cartography; site exploration; land use maps; hydrogeologic maps; ground water; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

973106 80-16808

Probabilistic evaluation of the design basis seismic ground motion (DESIGN) for Chats Falls site

Dennis, J. J.

Ont. Hydro, Toronto, Ont., CAN
Canadian Geophysical Union, sixth annual meeting, Fredericton, N.B., Canada, June 4-6, 1979
Eos (Am. Geophys. Union, Trans.) 60: 42, 754-755p., 1979

CODEN: EOSTAJ ISSN: 0096-3941

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
Latitude: N420000 Longitude: W0700000; W0900000
Descriptors: Canada; seismology; engineering geology; seismicity; geologic hazards; seismic risk; Chat Falls; probability; design; ground motion; site exploration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

972270 80-17071

Metal versus nonwoven fiber fabric earth reinforcement in dry sands; a comparative statistical analysis of model tests

Imay, M. I.; Antonini, M.; Arian, A.

Ln. State Univ., Dep. Civil Eng., Baton Rouge, La., USA
Geotech. Text. J., 2: 1, 44-60p., 1979

CODEN: GTJDDJ ISSN: 0149-6115 10 REFS.

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., block diag., sect., tables, plates
Descriptors: soil mechanics; materials; properties; sand; materials, properties; clastic sediments; models; reinforcement; statistical analysis; stress; density; physical properties; friction; engineering geology
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

972365 80-16790

Deformation and strength characteristics of soft Bangkok Clay discussion

Cheney, J. A.

Univ. Calif., Davis, Dep. Civil Eng., Davis, Calif., USA
Am. Soc. Civ. Eng., Proc., J. Geotech. Eng. Div. 105: GT9, 1129-1131p., 1979

CODEN: AUGEB6 ISSN: 0093-6405 2 REFS.

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Note: For reference to original article by Balasubramanian, A. S. and Chaudhry, A. R., see Vol. 104, No. G19, 1978, illus.

Descriptors: soil mechanics; deformation; consolidation; engineering geology; stress; strain; shear strength; soft clays; clays; Bangkok Clay; loading; materials, properties; physical properties; mechanical properties; statistical analysis; Cam Clay theory
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

972264 80-16847
 Prediction of undrained behavior of sand discussion
 Flaviigny, E.; Foray, P.; Darve, F.
 Am. Soc. Civ. Eng., Proc., J. Geotech. Eng. Div. 105: G19,
 1126-1129p., 1979
 CODEN: AJGEB6 ISSN: 0093-6405 5 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 Note: For reference to original article by Lade, P. V., see
 Vol. 104, No. G16, 1978. illus.
 Descriptors: *soil mechanics; materials; properties; clastic
 sand; Chattahoochee Sand; engineering geology; stress;
 sediments; materials, properties; pore pressure; density;
 strain; confining pressure; permeability; saturation; shear
 inhomogeneity; sample preparation; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

972258 80-16756
 Probabilistic evaluation of safety of soil structures
 Athanasou-Grivas, D.
 Rensselaer Polytech. Inst., Troy, N.Y., USA
 Am. Soc. Civ. Eng., Proc., J. Geotech. Eng. Div. 105: G19,
 1091-1095p., 1979
 CODEN: AJGEB6 ISSN: 0093-6405 1 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.: table
 Descriptors: *soil mechanics; deformation; loading;
 engineering geology; physical properties; stability;
 failure; stress; strain; density; statistical analysis;
 geologic hazards; foundations
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

971655 80-12306
 Il calcolo dello stato di sollecitazione indotto dallo scavo
 di una galleria di forma arbitraria entro un ammasso roccioso
 anisotropo in un campo di sollecitazioni triassiali
 Calculation of the state of stress induced by the excavation
 of a tunnel of arbitrary shape within an anisotropic rock mass
 in a triaxial stress field
 Ribacchi, R.
 Ind. Min. (Rome) 27: 2, 57-68p., 1976
 CODEN: IMIRAK ISSN: 0019-7696
 Subfile: B
 Country of Publ.: Italy
 Doc Type: SERIAL Bibliographic Level: ANALYTIC

970481 80-11930
 Consequence of an earthquake prediction on statistical
 estimate of the seismic risk
 Anderson, J. G.
 Univ. South. Calif., Dep. Civ. Eng., Los Angeles, Calif.,
 USA
 variously paginated., 1979
 Subfile: B
 Doc Type: REPORT Bibliographic Level: MONOGRAPHIC
 Languages: English
 Availability: U. S. Geol. Surv., United States
 illus.: tables
 Descriptors: *earthquakes; *automatic data processing;
 *seismology; prediction; engineering geology; seismic
 risk; geologic hazards; ground motion; computer programs;
 FORISK; strong motion; seismicity; statistical analysis;
 magnitude; intensity
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

969444 80-12216
 Ogólna metoda sprawdzania stateczności zboczy wzdłuż
 dowolnych powierzchni przylgu Czes III
 General analysis of slope stability along arbitrary slip
 surfaces; Part III, Estimation equilibrium method
 Madej, J.
 Arch. Hydrotech. 25: 4, 491-507p., 1978
 CODEN: AHDRAF ISSN: 0004-0789 23 REFS.
 Subfile: B
 Country of Publ.: Poland
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: Polish Summary Languages: Russian
 illus.: tables
 Descriptors: *slope stability; *soil mechanics;
 theoretical studies; plane failure; cohesionless materials;
 limit equilibrium method; strain; stress; finite element
 analysis; statistical methods; elastoplastic materials;
 experimental studies
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

972264 80-16847
 Prediction of undrained behavior of sand discussion
 Flaviigny, E.; Foray, P.; Darve, F.
 Am. Soc. Civ. Eng., Proc., J. Geotech. Eng. Div. 105: G19,
 1126-1129p., 1979
 CODEN: AJGEB6 ISSN: 0093-6405 5 REFS.
 Subfile: B
 Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 Note: For reference to original article by Lade, P. V., see
 Vol. 104, No. G16, 1978. illus.
 Descriptors: *soil mechanics; materials; properties; clastic
 sand; Chattahoochee Sand; engineering geology; stress;
 sediments; materials, properties; pore pressure; density;
 strain; confining pressure; permeability; saturation; shear
 inhomogeneity; sample preparation; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

962091 80-11715

Seismic classification of rock mass qualities

Sjogren, B.; Drathus, A.; Sandberg, J.
Geophys. Prospect. (The Hague) 27: 2. 409-442p.. 1979
CODEN: GPPRAR ISSN: 0016-8025 9 REFS.
Subfile: B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.. tables

Descriptors: 'geophysical methods'; seismic methods;
applications: p-waves; statistical analysis; fractures;
structure; weathering; elastic constants; S-waves; rock
mechanics; Poisson's ratio; velocity
Section Headings: 20 (GEOPHYSICS, APPLIED)

967562 80-08256

Regional assessment of seismic risk in eastern Canada

Basham, P. W.; Weichert, D. H.; Berry, M. J.
Earth Phys. Branch, Ottawa, Ont., CAN
Seismol. Soc. Am., Bull. 69: 5. 1567-1602p.. 1979
CODEN: BSSAAP ISSN: 0037-1106 54 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Note: Can., Earth Phys. Branch; Contrib. No. 786. illus..
tables, sketch maps

Latitude: N400000 Longitude: W0500000; W0900000
Descriptors: 'Canada'; 'Quebec'; 'seismology'; engineering
geology; earthquakes; geologic hazards; seismic risk;
Northern Appalachians; Appalachians; Maritime Provinces;
Saint Lawrence Valley; probability; prediction; seismicity;
zoning; regional patterns; history; numerical analysis;
statistical methods; nuclear facilities
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

967561 80-08566

On Canadian methodologies of probabilistic seismic risk estimation

Weichert, D. H.; Milne, W. G.
Pac. Geosci. Cent., Sidney, B.C., CAN
Seismol. Soc. Am., Bull. 69: 5. 1549-1566p.. 1979
CODEN: BSSAAP ISSN: 0037-1106 21 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Note: Can., Earth Phys. Branch; Contrib. No. 792. illus..
tables, sketch map
Latitude: N420000 Longitude: W0520000; W1410000

Descriptors: 'Canada'; 'Quebec'; 'seismology'; engineering
geology; earthquakes; geologic hazards; seismic risk;
prediction; probability; mathematical methods; numerical
analysis; statistical methods; Northern Appalachians;
Appalachians; Maritime Provinces; Saint Lawrence Valley
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

967005 80-08046

Mechanics of particulate media: a probabilistic approach

Harr, M. E.
Purdue Univ., Dep. Civ. Eng., West Lafayette, Indiana, USA
Publ: McGraw Hill
543p.. 1977
752 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: BOOK Bibliographic Level: MONOGRAPHIC
Languages: English
Note: Advanced book program, illus.
Descriptors: 'engineering geology'; 'soil mechanics';
textbooks; theoretical studies; foundations; mathematical
geology; statistical analysis; probability; seepage;
ground water; particulate materials; settlement; granular
materials
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

966744 80-08435

Determination d'une loi de comportement pour le cisaillement des sols pulvérulents: application au calcul d'essais triaxiaux

Monnet, J.; Girelly, J.
Rev. Fr. Geotech. 7. 45-56p.. 1979
29 REFS.
Subfile: B

Country of Publ.: France
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: French Summary Languages: English
tables, charts
Descriptors: 'soil mechanics'; theoretical studies;
triaxial tests; finite element analysis; statistical methods;
shear; soils; strain; stress; plastic flow;
mathematical models; models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

966741 80-08271

Methode de calcul du comportement des pieux a l'arrachement
Method for calculating the behavior of piles in extraction

Boulton, M.; Desruais, J.; Foray, P.
Rev. Fr. Geotech. 7, 11-22p., 1979
17 REFS.

Subfile: B

Country of Publ.: France

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: French

Note: Lecture at the meeting of the French Committee on Soil
Mechanics on June 19, 1978. illus., charts
Descriptors: *soil mechanics; *foundations; theoretical
studies; experimental studies; piles; clay; elastic
sediments; sand; shear; finite element analysis;
statistical methods; loading
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

966739 80-08299

Analisi numerico-statistica di prove penetrometriche su
vasta scala
Numerical-statistical analysis of large-scale penetrometric
tests

Crespellani, T.; Lol, A.
Riv. Ital. Geotec. 12, 2, 78-100p., 1978
CODEN: RITGAI 17 REFS.

Subfile: B

Country of Publ.: Italy

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Italian Summary Languages: English
Descriptors: *soil mechanics; methods; statistical
analysis; mathematical models; models; ecology; cluster
analysis; statistical methods; sedimentary rocks; sediments
; land use; penetrometer tests
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

966705 80-08410

Kritische Betrachtung der Anwendungsmöglichkeit ten von
finite-Element-Berechnungen im Felsbohrerbaubau
Critical consideration on the possibilities of applying the
finite element calculations in rock excavation engineering
Lielups, L.; Obenaus, P. W.

Berechnung, Erkundung und Entwurf von Tunneln und
Felsbauwerken--Computation, exploration and design of tunnels
and rock structures

Mueller, L. (EDITOR)
Rock Mech., Suppl. 8, 43-56p., 1979
ISSN: 0080-3375 14 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: German Summary Languages: English
illus.

Descriptors: *tunnels; *rock mechanics; excavations;
materials; properties; stress; finite element analysis;
statistical methods; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

966569 80-08577

The applications of non-linear finite elements method in
engineering geology

Yin Youquan; Ou Shengnian; Liu Jun
Sci. Geol. Sinica 3, 236-251p., 1979
CODEN: SGSIAG 10 REFS.

Subfile: B

Country of Publ.: China

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Chinese Summary Languages: English
illus., tables, sect.

Descriptors: *engineering geology; methods; mathematical
methods; finite element analysis; statistical methods;
non-linear analysis; stress; elastoplastic materials;
strain

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

966345 80-08488

Sampling of peat

Sasaki, H.
Tsuchi-to-Kiso 27, 5, 31-38p., 1979
7 REFS.

Subfile: B

Country of Publ.: Japan

Doc Type: SERIAL CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: Japanese Summary Languages: English

illus., table

Descriptors: *soil mechanics; deformation; sampling;
peat; organic sediments; properties; statistical methods;
structure; morphology; techniques; shear strength;
materials; properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

966227 80-07646

Physikalische Prozesse in Erdbengebieten; Interpretations-
möglichkeiten mit Laborexperimenten an Gesteinen
Physical processes in earthquake regions; possibilities of
interpretation by means of laboratory experiments on rocks
Stillier, H.; Wagner, F. C. 1978
Z. Angew. Geol. 24: 11. 456-464p. 1978
CODEN: ZANGAK ISSN: 0044-2259 27 REFS.
Subfile: B

Country of Pub.: German Democratic Republic
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: German Summary Languages: Russian
Descriptors: earthquakes; deformation; pore pressure
focus; experimental studies; rock mechanics; genesis;
elastic waves; velocity; faults; fractures; seismicity;
statistical analysis; stochastic processes; basalt; basalt
family; breccia; clastic rocks; lunar materials; dunite;
ultramafic family; gneiss; gneisses; granite;
granite-granodiorite family; sandstone; shallow-focus
earthquakes; sedimentary rocks; igneous rocks; metamorphic
rocks; Poisson's ratio; elastic constants; porosity;
conductivity; electrical conductivity; thermal conductivity;
mathematical models; model
Section Headings: 19 (GEOPHYSICS, SEISMOLOGY)

966043 80-08525

A statistical study on the relations between landslides and
topography, geology and rainfall factors in the Kurobe River
Basin

Takase, N.; Kimura, M.; Hata, T.; Tamura, T.
Kanazawa Univ., Jap. Sea Res. Inst., Bull. 10. 103-115p. 1978

CODEN: KJSRBB 12 REFS.
Subfile: B
Country of Pub.: Japan
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Japanese Summary Languages: English
illus., tables, sketch map
Latitude: N364000 Longitude: E1374500; E1371500
Descriptors: Japan; geomorphology; environmental geology
engineering geology; mass movements; geologic hazards;
slope stability; landslides; Asia; Kurobe River basin;
Honshu; topography; atmospheric precipitation; rain;
mechanism; statistical analysis; urban planning
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

965956 80-08552

Matematiko-statistiko hodneceni metodiky mereni
reologichesk a kolooidal vlastnosti suspence bentonitu
evliivna syntetichesk zlatocuvadly
A mathematical and statistical evaluation of the methods for

measuring the rheological and colloidal properties of a
suspension-affected bentonite suspension

Valisova, I.; Frlal, Z.; Esterka, F.
Pr. Vysk. Inst. Geol. 34: Publ. 252-268, 149-160p. 1976

CODEN: PVUIDX ISSN: 0139-763X 14 REFS.
Subfile: B

Country of Pub.: Czechoslovakia
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Czech Summary Languages: Russian
illus., tables
Descriptors: engineering geology; petroleum engineering
methods; drilling; polyphenolic syntans; stabilizers;
mathematical models; models; petroleum
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

965843 80-08463

Some simple expressions for the probability of failure of a
finite reservoir with Markovian input

Pegram, G. G. S.
Geophys. Res. Lett. 5: 1. 13-15p. 1978
CODEN: GRLAUI ISSN: 0094-8276 6 REFS.

Subfile: B
Country of Pub.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Descriptors: reservoirs; design; theoretical studies;
engineering geology; Markov chain analysis; mathematical
methods; failure; probability; stochastic processes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

965825 80-08111

The selection of soil parameters for the design of
foundations

Peck, R. B.

Seventh national meeting of the Mexican Society for Soil
Mechanics, Guadalajara, Mexico, Nov. 23, 1974
Nabor Carrillo Lect. [Ser.] 2. 9-47p. 1975

Subfile: B
Country of Pub.: Mexico
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: MONOGRAPHIC
Languages: English
illus.
Descriptors: foundations; design; soil mechanics; site
exploration; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

965821 80-08535

Untersuchungen der Einflussfaktoren auf die Höhe des Abgabekoeffizienten von Erdgaslagerstätten
The factors affecting the recovery coefficient of natural gas deposits
Teumer, P.; Anclan, P.; Voigt, D.; Heuer, K.

Spornik VIII Mezinárodní vědecké konference o geochemických a fyzikálně chemických problémech při průzkumu a těžbě ložisek živců, Sekce C, Aplikovaná Chemie der Erdöl- und Erdgasförderung
Svestka, J. (EDITOR)
Spornik VIII Mezinárodní vědecké konference o geochemických a fyzikálně chemických problémech při průzkumu a těžbě ložisek živců, Gottwaldove, Czechoslovakia, April 24-28, 1976
Pr. Vysk. Ústavu Geol. Inz. 35: 3, 176-192p., 1978
CODEN: PVUIDX ISSN: 0139-763X 6 REFS.
Subfile: B

Country of Publ.: Czechoslovakia
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: German Summary Languages: Russian illus.

Descriptors: *engineering geology; petroleum engineering; natural gas; recovery; mathematical models; models; pressure; deposits; pressure gradient; methods; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

965587 80-08251

Anisotropic elastoplastic undrained analysis of soft clays

Balaster, F.; Sagaseta, C.
Geotechnique 29: 3, 323-340p., 1979
CODEN: GTNOJ8 ISSN: 0016-8505 32 REFS.

Subfile: B

Country of Publ.: United Kingdom
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French illus., charts

Descriptors: *soil mechanics; experimental studies; loading; clays; mathematical models; models; failure; shear strength; consolidation; pressure; finite element analysis; statistical methods; settlement; young modulus; yields
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

965468 80-08491

Ermittlung des Spannungs-Verformungsverhaltens von Lockergesteinen als Voraussetzung der Anwendung der Methode der finiten Elemente
Determination of stress-strain behavior in unconsolidated

rocks as a prerequisite for the application of the finite element method
Scheffler, H.

Geomechanik im Fest- und Lockergebirge

Gimm, W. (EDITOR)
12. Geomechanisches Kolloquium; Geomechanik im Fest- und Lockergebirge, Freiberg, German Democratic Republic, Nov. 14, 1974
Freiberg, Forschungsh., Reihe A 569, 71-103p., 1977
ISSN: 0071-9390 35 REFS.

Subfile: B

Country of Publ.: German Democratic Republic
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: German

Descriptors: *soil mechanics; deformation; finite element analysis; engineering geology; instruments; stress; strain; mathematical models; models; statistical methods; sediments; clays; methods; materials, properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

964592 80-08283

Non-linear response of structure-fluid-foundation system to earthquake excitation

Chang, C. T.; Hinton, E.; Zienkiewicz, D. C.

Numerical methods in offshore engineering

Zienkiewicz, D. C. (EDITOR); Lewis, R. W. (EDITOR); Stagg, K. G. (EDITOR)

Numerical methods in offshore engineering, Swansea, Wales, United Kingdom, Jan., 1977

Publ.: John Wiley & Sons

341-358p., 1978

32 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *foundations; stability; seismic response; finite element analysis; statistical methods; earthquakes; liquefaction; stress; equations; engineering geology; mathematical methods; offshore
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

963077 80-04535

Prediction of earth pressure in retaining structure

Matsuaki, K.
Univ. of New South Wales, AUS
unknown.
1979
Subfile: B
Degree Level: Doctoral
Country of Publ.: Australia
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Descriptors: soil mechanics; earth pressure; prediction;
theoretical studies; experimental studies; structures;
deformation; stress; strain; triaxial tests; finite
element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

963009 80-04307

A statistical study of changes in channel geometry of the lower Missouri River

Beitz, C. B., Jr.
Box 899, Pierre LaCade Stn., St. Louis, Mo., USA
The Geological Society of America, 92nd annual meeting,
San Diego, Calif., United States, Nov. 5-8, 1979
Geol. Soc. Am. Abstr. Programs 11: 7, 387p., 1979
CODEN: GABPBC ISSN: 0016-7592
Subfile: B
Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Descriptors: Missouri; hydrology; geomorphology;
engineering geology; surveys; fluvial features; waterways;
Missouri River; channel geometry; Saint Charles County;
Gasconade County; United States; Lower Missouri River;
Hermann; Saint Charles; rivers and streams; discharge;
floods; statistical analysis; hydraulics; changes;
channels; velocity; mathematical models; levees
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

962779 80-04704

**FEM-analys jämförd med modellstudier
Finite element analysis compared to model studies**

Groth, T.; Jönasson, P.
Foerdrag och diskussioner vid Bergmekaniskt diskussionsmo-
te
Franzen, T. (EDITOR)
Rock mechanics meeting, Stockholm, Sweden, Feb. 21, 1978
Publ: Stiftelsen Bergteknisk Forskning-Befo
119-136p., 1978

Subfile: B
Country of Publ.: Sweden
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: Swedish Summary Languages: English
illus.
Descriptors: rock mechanics; experimental studies;
finite element analysis; statistical methods; photogrammetry;
biaxial tests; caverns; structural analysis; models;
underground space
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

962765 80-04692

**Vergleichende Untersuchungen an Hohlraumbauten mittels
numerischer Berechnung
Comparative studies of hollow space constructions based on
numerical calculations**

Froehlich, B.
Grundlagen und Anwendung der Felsmechanik
Natau, O. (EDITOR); Fecker, E. (EDITOR); Reik, G. (EDITOR)
Grundlagen und Anwendung der Felsmechanik; Felsmechanik
Kolloquium, Karlsruhe, Germany, Federal Republic of, Feb.
23-24, 1978
Publ: Trans Tech Publ.
233-245p., 1978
ISBN: 0878490299 6 REFS.
Subfile: B
Country of Publ.: Germany, Federal Republic of

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: German
illus.; table, charts
Descriptors: tunnels; construction; stability;
engineering geology; underground space; finite element
analysis; statistical methods; joints; fractures; Bochum;
West Germany; Germany; Europe; automatic data processing;
galleries
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

962759 80-04608

Kriechen, relaxation und dynamische Spannungsumlagerungen im Fels
Creeep, relaxation and dynamic changes of stress in rocks
 Born, G

Grundlagen und Anwendung der Felsmechanik
 Natta, D (EDITOR); Ficker, E (EDITOR); Reik, G. (EDITOR)
 Grundlagen und Anwendung der Felsmechanik; Felsmechanik
 Vorträge, Karlsruhe, Germany, Federal Republic of, Feb.
 23-24, 1978
 Publ: Trans Tech Publ
 155-166p., 1978
 ISBN 0878490299 23 REFS.

Subfile: B
 Country of Publ.: Germany, Federal Republic of
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: German
 illus.

Descriptors: *rock mechanics; *automatic data processing;
 applications; engineering geology; dynamics; rheology;
 creep; relaxation; stress; tunnels; models; structural
 analysis; faults; foundations; finite element analysis;
 statistical methods; joints; fractures
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

962652 80-04859

Statistical theory of sampling nonuniform soils
 Rat, M. V.; Sheinin, V. I.

**International symposium, The geotechnics of structurally
 complex formations; Volume I**

Anonymous
 International symposium, The geotechnics of structurally
 complex formations, Capri, Italy, 1977
 Publ: Assoc. Geotec. Ital.
 395-399p., 1977
 10 REFS.

Subfile: B
 Country of Publ.: Italy
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus.

Descriptors: *soil mechanics; foundations; statistical
 methods; engineering geology; sampling; Monte Carlo
 analysis; inhomogeneity; theoretical studies
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Numerical analysis of reinforced soil systems
 Herrmann, L. R.; Al-Yassin, Z.
 Univ. Calif., Dep. Civ. Eng., Davis, Calif., USA

Symposium on earth reinforcement
 Mitchell, J. K. (Chairperson)
 Symposium on earth reinforcement, Pittsburgh, Pa., United
 States, April 27, 1978
 Publ: Am. Soc. Civ. Eng.
 428-457p., 1979
 14 REFS.

Subfile: B
 Country of Publ.: United States
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus., sects.

Descriptors: *soil mechanics; materials; properties;
 reinforced earth; materials; properties; numerical analysis;
 plane strain; inelastic materials; finite element analysis;
 statistical methods; stress; models; displacements;
 reinforcement
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Numerical analysis of a reinforced earth wall
 Al-Hussaini, M.; Johnson, L. D.
 U. S. Army Eng. Water. Exp. Stn., Solis and Pavement Lab.,
 Vicksburg, Miss., USA

Symposium on earth reinforcement
 Mitchell, J. K. (Chairperson)
 Symposium on earth reinforcement, Pittsburgh, Pa., United
 States, April 27, 1978
 Publ: Am. Soc. Civ. Eng.
 98-126p., 1979
 10 REFS.

Subfile: B
 Country of Publ.: United States
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus., table, sects.

Descriptors: *slope stability; *foundations; *soil mechanics;
 reinforced earth; earthworks; materials; properties;
 properties; retaining walls; strain; loading; materials;
 finite element analysis; statistical methods; numerical
 analysis; field studies; reinforcement
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

962099 80-04721

961897 80-04647

Statistical variation in stress-volumetric strain behavior of Westerly Granite

Costantino, M. S.
Int. J. Rock Mech. Min. Sci. Geomech. Abstr. 15: 3, 105-111p., 1978
ISSN: 0148-9062 7 REFS.

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: rock mechanics; experimental studies; compression; materials; properties; stress; strain; Westerly Granite; statistical analysis; mathematical methods; triaxial tests
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

960902 80-04837

Pore-pressure dissipation during excavation

Osnimi, A. E.; Clough, G. W.
Stanford Univ., Dep. Civ. Eng., Stanford, Calif., USA
Am. Soc. Civ. Eng., Proc., J. Geotech. Eng. Div. 105: G14, 481-495p., 1979
CODEN: AJGEB6 ISSN: 0093-6405 16 REFS.

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: soil mechanics; materials; properties; clays; pore pressure; engineering geology; excavations; finite element analysis; statistical methods; stress; consolidation; mathematical models; models; theoretical studies; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

960186 80 01309

Elastic-plastic finite element models of forced folds and comparison with specific natural structures

Jamison, W. R.; Stearns, D. W.
Tex. A&M Univ., Cent. Tectonophys., College Station, Tex., USA

American Geophysical Union: 1979 spring annual meeting, Washington, D.C., United States, May 28-June 1, 1979
Eos (Am. Geophys. Union, Trans.) 60: 18, 371p., 1979
CODEN: EOSIAJ ISSN: 0096-3941

Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Latitude: N370000 Longitude: W1020000; W1090000
Descriptors: Colorado; deformation; rock mechanics; folds; structural geology; theoretical studies; mechanics; elasticity; models; Wingate Sandstone; finite element analysis; statistical methods; mathematical models; strain; plasticity; strain hardening; sandstone; elastic rocks; Triassic; Mesozoic; United States; Uncompagrine Plateau; structural analysis; geometry; energy
Section Headings: 16 (STRUCTURAL GEOLOGY)

959155 80-02055

A Bayesian model for seismic hazard mapping

Mortgat, C. P.; Shah, H. C.
TERA Corp., Berkeley, Calif., USA; Stanford Univ., USA
Seismol. Soc. Am., Bull. 69: 4, 1237-1251p., 1979
CODEN: BSSAAP ISSN: 0037-1106 13 REFS.

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Latitude: N080000 Longitude: W0823000; W0860000
Descriptors: geologic hazards; maps; automatic data processing; Costa Rica; earthquakes; cartography; engineering geology; models; mathematical models; Bayesian theory; seismicity; statistical methods; geometry; theoretical studies; ground motion; Central America; algorithms; seismic risk
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

957081 80-01945

Theoretical study of hydraulically fractured penny-shaped cracks in hot, dry rocks

Abe, M.; Keen, L. M.; Mura, T.
 Northwest Univ., Dep. Civ. Eng., Evanston, Ill., USA
 Int. J. Numer. Anal. Methods Geomech. 3: 1, 79-96p., 1979

ISSN: 0363-9061 10 REFS.

Subfile: B
 Country of Publ.: International
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.: tables
 Descriptors: geothermal energy; fractures; rock mechanics; production; genesis; materials; properties; hot dry rocks; hydraulic fracturing; elastic materials; materials; properties; homogeneous materials; isotropic materials; viscous materials; permeability; stress; two-dimensional models; models; granite; granite-granodiorite family; Poisson's ratio; elastic constants; displacements; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

958168 80-01981

Antecedentes geotécnicos para el hundimiento forzado con tiros de gran diámetro en mina El Teniente

Geotechnical antecedents for forced caving by means of large holes in El Teniente Mine
 Charon, J.; Krstulovic, G.
 Minerías 33: 144, 23-41p., 1978

CODEN: MINCAN 11 REFS.

Subfile: B
 Country of Publ.: Chile
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: Spanish Summary Languages: English
 illus.: tables
 Latitude: 5560000; Longitude: 5174500
 Descriptors: Chile; mining geology; engineering geology; methods; forced caving; South America; El Teniente; applications; excavations; stability; models; design; pillars; finite element analysis; statistical methods; theoretical studies; mathematical models; production control
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

957998 80-02000

Swiss use of the computer in soil mechanics

Dyall, M.

Proceedings of the specialty session on computers in soil mechanics; present and future
 Schiffman, R. L. (EDITOR)

Ninth international conference on soil mechanics and foundation engineering, Tokyo, Japan, July, 1977
 Int. Conf. Soil Mech. Found. Eng., Proc., 9, 268-289p., 1978

CODEN: PCSMB2 19 REFS.

Subfile: B
 Country of Publ.: Varies
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 illus.: tables
 Latitude: 4454500; Longitude: E0103000; E0055000
 Descriptors: Switzerland; soil mechanics; automatic data processing; engineering geology; methods; Europe; slope stability; finite element analysis; statistical methods; models; foundations; settlement; loading; piles
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

957994 80-02109

Finite element computations using an elastoplastic soil model for geotechnical problems of soft clay

Wroth, C. P.; Zytynski, M.

Proceedings of the specialty session on computers in soil mechanics; present and future
 Schiffman, R. L. (EDITOR)

Ninth international conference on soil mechanics and foundation engineering, Tokyo, Japan, July, 1977
 Int. Conf. Soil Mech. Found. Eng., Proc., 9, 193-243p., 1978

CODEN: PCSMB2 28 REFS.

Subfile: B
 Country of Publ.: Varies
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 illus.: tables
 Descriptors: soil mechanics; automatic data processing; theoretical studies; engineering geology; clays; finite element analysis; statistical methods; models; elastoplasticity; mathematical models; elasticity; triaxial tests; simulation; applications; computers
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

957993 80-02083

The role of finite element techniques in applied soil mechanics and foundation engineering

Shaw, D. E.; Rizzo, P. C.; D'Appolonia, F.
D'Appolonia Consulting Eng., Pittsburgh, Pa., USA

Proceedings of the specialty session on computers in soil mechanics; present and future

Schiffman, R. L. (EDITOR).
Ninth International Conference on soil mechanics and foundation engineering. Tokyo, Japan, July, 1977 143-192p..
Int. Conf. Soil Mech. Found. Eng., Proc. 9, 143-192p..
1978

CODEN: PCSMB2 25 REFS.

Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: tables

Descriptors: *soil mechanics; *foundations; *dams; *nuclear facilities; methods; mathematical methods; theoretical studies; finite element analysis; statistical methods; applications; deformation; Europe; seismic response; mathematical models; models; Canada; stress; automatic data processing

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

957992 80-02048

Predicted and measured pore pressures in a dam

Marr, W. A.; Lamb, T. W.
Mass. Inst. Technol., Dep. Civ. Eng., Cambridge, Mass., USA

Proceedings of the specialty session on computers in soil mechanics; present and future

Schiffman, R. L. (EDITOR).
Ninth International Conference on soil mechanics and foundation engineering. Tokyo, Japan, July, 1977 124-142p..
Int. Conf. Soil Mech. Found. Eng., Proc. 9, 124-142p..
1978

CODEN: PCSMB2 5 REFS.

Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: tables, sects.

Latitude: N275500 Longitude: W0822000; W0822000
Descriptors: *Florida; engineering geology; dams; pore pressure; gypsum; sulfates; finite element analysis; statistical methods; Tampa; United States; theoretical studies; mathematical methods; seepage; stability; foundations; properties; prediction; Darcy's law; automatic data processing

957991 80-02042

Finite element computer programs for seismic soil-structure interaction-analysis

Lyster, J.; Seed, H. B.
Univ. Calif., Dep. Civ. Eng., Berkeley, Calif., USA

Proceedings of the specialty session on computers in soil mechanics; present and future

Schiffman, R. L. (EDITOR).
Ninth International conference on soil mechanics and foundation engineering. Tokyo, Japan, July, 1977 123-124p..
Int. Conf. Soil Mech. Found. Eng., Proc. 9, 123-124p..
1978

CODEN: PCSMB2

Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *soil mechanics; *automatic data processing; methods; engineering geology; finite element analysis; statistical methods; computers; mathematical methods; foundations; possibilities

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

957990 80-01947

Numerical analysis of stress path under multidimensional consolidation

Akai, K.; Tamura, T.

Proceedings of the specialty session on computers in soil mechanics: present and future

Schiffman, R. L. (EDITOR)

Ninth international conference on soil mechanics and foundation engineering. Tokyo, Japan, July, 1977
Int. Conf. Soil Mech. Found. Eng., Proc. 9, 30-53p., 1978

CODEN: PCSMB2 12 REFS.

Subfile: B

Country of Publ.: Varies

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.

Descriptors: *soil mechanics ; theoretical studies ; stress; numerical analysis; finite element analysis; statistical methods; consolidation; clay; clastic sediments ; plasticity; failure; dilatancy; deformation; automatic data processing

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

957558 79-39299

A computer model for the behaviour of London Clay

Simpton, B.; O'Riordan, N. J.; Croft, D. D.

Geotechnique 29: 2, 149-175p., 1979

CODEN: GTNQA8 ISSN: 0016-8505 25 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

illus.

Descriptors: *England; *soil mechanics ; engineering geology; deformation ; excavations; Europe; London; British Library; stress; strain; computers; automatic data processing; London Clay; elastic materials; plastic materials; elastoplastic materials; site exploration; non-linear analysis; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

957449 79-39203

The relation between subsoil condition and the collapse rate of wooden houses due to the Great Kanto earthquake of 1923 in Yokohama City

Matsumoto, I.; Wada, S.; Miyano, M.

J. Geogr. (Tokyo) 87: 5.3(827), 14-23p., 1978

CODEN: CGZAAL 12 REFS.

Subfile: B

Country of Publ.: Japan

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Japanese Summary Languages: English

illus.. sketch maps

Latitude: N353000; Longitude: E1393000; E1393000

Descriptors: *Japan ; engineering geology ; earthquakes; Asia; Honshu; Yokohama; Kanagawa; 1923; Great Kanto earthquake; Kanto Plain; damage; effects; least-squares analysis; statistical methods; statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

957285 79-39064

Uncertainty analysis of settlement rate

El-Mourst, H. H.; Corotis, R. B.; Krizek, R. J.

Soil Test. Serv. Iowa, Cedar Rapids, Iowa, USA; Northwestern Univ., USA

Soil mechanics; rutting in asphalt pavements, embankments on varied clays, and foundations

Transp. Res. Rec. 616, 81-84p., 1976

CODEN: TRREDM 2 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.. table

Descriptors: *soil mechanics ; settlement ; rates; compression; loading; consolidation; compressibility; homogeneous media; statistical analysis; probability

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

957284 79-39153

Design approach for circular buried conduits

Kay, J. M.; Abel, J. F.
Cornell Univ., Sch. Civ. Environ. Eng., Ithaca, N.Y., USA

**Soil mechanics; rutting in asphalt pavements, embankments on
varved clays, and foundations**
Transp. Res. Rec. 616. 78-79p.. 1976
CODEN: TRERDM 4 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: underground installations ; design ; finite
element analysis; conduits; statistical methods; graphical
techniques; deformation; flexibility; compressibility;
compression; response; stress; in situ; fill
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

955423 79-39070

**Elastoplastic analysis of stresses in coal pillars by finite
element method**

Froese, A. B.; Abdalrhayev, E. K.
Rock Mech. (Vienna) 11: 4. 243-251p.. 1979
CODEN: RMFMA5 ISSN: 0035-7448 5 REFS.

Subfile: B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: German

Descriptors: rock mechanics; underground installations ;
theoretical studies ; stress; finite element analysis;
statistical methods; elastoplasticity; mathematical methods;
pillars; loading; deformation; failure
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

954613 79-39275

**Zależność postępy rozdrabniania a prędkość przejścia
fali ultradźwiękowej podłożnej dla próbek niektórych skał
Relation between size reduction and velocity of travel of a
longitudinal ultrasonic wave through samples of certain rocks**

Samulito, J. S.
Gornictwa Staszica Nr 680. 57-68p.. 1978
CODEN: GORNOL 10 REFS.

Subfile: B

Country of Publ.: Poland
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Polish Summary Languages: English
illus., tables

953420 79-35047

**Some aspects of three dimensional and two dimensional rock
slope stability analyses with two case histories**

Steffen, D. K. W.
Univ. of Witwatersrand, ZAF
unknown.. 1978

Subfile: B

Degree Level: Doctoral
Country of Publ.: South Africa
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English

Availability: Univ. Microfilms
Latitude: S350000; S220000 Longitude: E0330000; E0160000
Descriptors: slope stability; mining geology; rock
mechanics ; field studies; production control; applications
; open-pit mining; case studies; South Africa; Africa;
Zambia; two-dimensional models; models;
models; statistical methods; theoretical studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

953419 79-35044

**An analysis of rock properties and geological
discontinuities on colliery roadway stability**

Lackey, S. F.
Univ. of New South Wales, AUS
unknown.. 1978

Subfile: B

Degree Level: Doctoral
Country of Publ.: Australia
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English

Descriptors: mining geology; underground installations;
rock mechanics ; production control; mines; deformation ;
roof control; stability; stress; finite element analysis;
statistical methods; coal; organic residues; roadways;
discontinuities
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

953417 79-35046
Earth pressures on conduits and retaining walls
 Grigley, R. W.
 Univ. of California, Berkeley, Calif., USA
 41pp., 1978
 Subfile: B
 Degree Level: Doctoral
 Country of Pub.: United States
 Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
 Languages: English
 Availability: Univ. Microfilms
 Descriptors: *soil mechanics; earth pressure; prediction
 design; automatic data processing; finite element
 analysis; statistical methods; conduits; walls;
 theoretical studies: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

953309 79-35199
Creep stress analysis of frozen soils under multiaxial states of stress
 Klein, J.; Jessberger, H. L.
 Bochum, Germany, Federal Republic of, March 8-10, 1978
 Eng. Geol. 13 1-4, 353-365p., 1979
 CODEN EGGDQD ISSN: 0013-7952 5 REFS.

Ground freezing
 Jessberger, H. L. (EDITOR)
 First international symposium on ground freezing.
 Germany, Federal Republic of, March 8-10, 1978
 Eng. Geol. 13 1-4, 353-365p., 1979
 CODEN EGGDQD ISSN: 0013-7952 5 REFS.
 Subfile: B
 Country of Pub.: International
 Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus.
 Descriptors: *soil mechanics; *deformation; *frost action;
 theoretical studies; creep; ground freezing; artificial
 freezing; experimental studies; compression; mathematical
 models; finite element analysis; statistical
 methods; stress; automatic data processing
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

953306 79-35370
Ice behaviour under load
 Zaretsky, Yu. K.; Chumichev, B. D.; Solomatina, V. I.
 Bochum, Germany, Federal Republic of, March 8-10, 1978
 Eng. Geol. 13 1-4, 299-309p., 1979
 CODEN EGGDQD ISSN: 0013-7952 10 REFS.
Ground freezing
 Jessberger, H. L. (EDITOR)
 First international symposium on ground freezing.
 Germany, Federal Republic of, March 8-10, 1978
 Eng. Geol. 13 1-4, 299-309p., 1979
 CODEN EGGDQD ISSN: 0013-7952 10 REFS.

Subfile: B
 Country of Pub.: International
 Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus.
 Descriptors: *deformation; *soil mechanics; *reengineering
 geology; experimental studies; frost action; properties;
 materials; creep; ice; ground freezing; stress;
 compression; statistical analysis; theoretical studies;
 mathematical models; models; loading; materials, properties
 ; Zaretsky, Yu. K.
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

953303 79-35179
Effect of freeze-thaw cycles on resilient properties of fine-grained soils
 Johnson, F. C.; Cole, D. M.; Chamberlain, E. J.
 U. S. Army Cold Reg. Res. and Eng. Lab., Hanover, N.H., USA

Ground freezing
 Jessberger, H. L. (EDITOR)
 First international symposium on ground freezing.
 Germany, Federal Republic of, March 8-10, 1978
 Eng. Geol. 13 1-4, 247-276p., 1979
 CODEN EGGDQD ISSN: 0013-7952 20 REFS.
 Subfile: B
 Country of Pub.: International
 Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus.; table
 Descriptors: *soil mechanics; *deformation; *highways;
 frost action; experimental studies; elastic properties;
 ground freezing; laboratory studies; field studies; thawing
 ; cyclic loading; properties; loading; triaxial tests;
 compression; stress; fine-grained materials; elastic strain
 ; pavement; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

953287 79-35186

Frost heave of unsaturated loamy soil under field conditions
Karlou, V. D.

Ground freezing
Jesberger, M. L. (EDITOR)
First International Symposium on ground freezing. Bochum, Germany, Federal Republic of, March 8-10, 1978
Eng. Geol. 13: 1-4, 53-62p., 1979
CODEN: EGOAD ISSN: 0013-7952 3 REFS.
Subfile: B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: soil mechanics; frost action; frost heaving; ground freezing; moraines; loam; soils; field studies; unsaturated materials; foundations; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

953266 79-35352

An approach to seismic zoning in southern New England

Waldo, P. G.
U. S. Soil Conserv. Serv., Champaign, Ill., USA
Assoc. Eng. Geol., Bull. 16: 2, 267-286p., 1979
CODEN: ENGEA9 ISSN: 0004-5691 39 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables, sketch maps
Latitude: N410000 Longitude: W0750000
Descriptors: New England; seismology; engineering geology; seismicity; earthquakes; zoning; United States; epicenters; distribution; damage; seismic risk; geologic hazards; regression analysis; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

953147 79-31267

Seismic risk in Fennoscandia

Beath, M.
Tectonophysics 57: 2-4, 285-295p., 1979
CODEN: TECTOAM ISSN: 0040-1951 10 REFS.
Subfile: B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables, sketch map
Latitude: N543000 Longitude: E0320000; E0500000

Descriptors: Scandinavia; Finland; seismology; engineering geology; earthquakes; seismic risk; Europe; Fennoscandia; magnitude; occurrence; data; least-squares analysis; statistical methods; prediction; geologic hazards
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

952967 79-35947

3D mine pillar design information from 2D FEM analysis
Pariseau, W. G.; Sorensen, W. K.
Univ. Utah, Salt Lake City, Utah, USA: Cont. Oil Co., USA
Int. J. Numer. Anal. Methods Geomech. 3: 2, 145-157p., 1979
ISSN: 0363-9061 9 REFS.
Subfile: B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables, sects.
Descriptors: mining geology; engineering geology; methods; pillars; three-dimensional models; models; finite element analysis; statistical methods; two-dimensional models; stress; plane stress; plane strain; coal; organic residues; mines; loading
Section Headings: 26 (ECONOMIC GEOLOGY, GENERAL & MINING)

952966 79-35250

Observed and predicted test pile behaviour
Ottaviani, M.; Marchetti, S.
Int. J. Numer. Anal. Methods Geomech. 3: 2, 131-143p., 1979
ISSN: 0363-9061 11 REFS.
Subfile: B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: foundations; soil mechanics; piles; loading; cohesive materials; load cells; finite element analysis; statistical methods; deformation; settlement; stress; shear stress; failure; experimental studies; shear strength
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

951163 79-35241

Computer modelling of rock fracture in uniaxial compression

Nishimatsu, Y.; Okubo, S.
Tokyo, Univ. Fac. Eng., J., Ser. A 16, 54-55p., 1978
CODEN JETAAK 3 REFS.

Subfile: B

Country of Publ.: Japan

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Japanese Summary Languages: English

Descriptors: rock mechanics; loading; uniaxial tests; failure; fractures; genesis; finite element analysis; statistical methods; compression; heterogeneous materials; models; strain; displacements; mathematical models; computers; data handling

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

950962 79-35075

Macroseismic aspects and seismological and statistical considerations

Bastin, M.; Jaccarino, E.; Tenaglia, G.

Special issue: Proceedings of the international meeting on the Friuli earthquake: Part 1, Seismology, geophysics, geology
Finetti, I. (EDITOR); Morelli, C. (EDITOR)

International meeting on the Friuli earthquake, Udine, Italy, December 4-5, 1976

Boll. Geofis. Teor. Appl. 19, 72, 349-355p., 1976

CODEN BGTADE ISSN: 0006-6729

Subfile: B

Country of Publ.: Italy

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

Latitude: N363000 Longitude: E0190000; E0063000

Descriptors: Italy; seismology; engineering geology;

earthquakes; nuclear facilities; intensity; Europe;

design; seismic response; parameters; dispersion

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

950224 79-35221

Recognition of faults in Tertiary-Quaternary alluvium in northern Yucca Flat, Nevada

McKague, H. L.; Grothaus, B.; Howard, N. W.

Lawrence Livermore Lab., Livermore, Calif., USA; Univ. S.C.,

USA

The Geological Society of America, Cordilleran Section, 75th

annual meeting, San Jose, Calif., United States, April

9-11, 1979

Geol. Soc. Am., Abstr. Programs 11: 3, 91p., 1979

CODEN GAABBC ISSN: 0016-7592

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

Latitude: N365500 Longitude: W1155500; W1162000

Descriptors: Nevada; faults; engineering geology;

distribution; geologic hazards; alluvium; Nye County;

United States; Nevada Test Site; Yucca Flat; Tertiary;

Cenozoic; Quaternary; clastic sediments; site explorations;

nuclear facilities; explosions; underground explosions;

nuclear explosions; identification; statistical methods;

photogeology; geophysical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

949939 79-34506

Seismotectonics of the Beaufort Sea

Hasegawa, H. S.; Chou, C. W.; Basham, P. W.

Earth Phys. Branch, Ottawa, Ont., CAN

Drury, S. A. Earth Sci. 16: 4, 816-830p., 1979

CODEN CJESAP ISSN: 0008-4077 46 REFS.

Subfile: B

Country of Publ.: Canada

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

Note: Can., Earth Phys. Branch; Contrib. No. 764, 111us.,

Tables, sketch maps

Latitude: N690000 Longitude: W0260000; W1460000

Descriptors: Arctic Ocean; seismology; North America;

Canada; Alaska; seismicity; tectonophysics; engineering

geology; earthquakes; seismotectonics; plate tectonics;

geologic hazards; Beaufort Sea; epicenters; data;

continental slope; stress; cluster analysis; statistical

methods; gravity anomalies; elastic waves; spectral

analysis; Arctic region; United States; seismic risk

Section Headings: 19 (GEOPHYSICS, SEISMOLOGY)

949557 79-35316

Transient phenomena of offshore foundations
Smith, I. M.

Numerical methods in offshore engineering

Zienkiewicz, O. C. (EDITOR); Lewis, R. W. (EDITOR); Stagg, K. G. (EDITOR)

Publ.: John Wiley & Sons

483-513p., 1978

38 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

Descriptors: *foundations; *marine installations; design; *offshore; mathematical methods; finite element analysis; statistical methods; pore pressure; cyclic loading; theoretical studies; piles; engineering geology; methods; physical models; models

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

949556 79-35161

Some application of numerical methods to the design of offshore gravity structure foundations
Hobbs, R.; George, P. J.; Mustoe, C. G. W.

Numerical methods in offshore engineering

Zienkiewicz, O. C. (EDITOR); Lewis, R. W. (EDITOR); Stagg, K. G. (EDITOR)

Publ.: John Wiley & Sons

453-482p., 1978

32 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

Descriptors: *foundations; *marine installations; design; *offshore; mathematical methods; structures; engineering geology; methods; stability; finite element analysis; statistical methods; accuracy; soil mechanics

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

949554 79-35372

A unified approach to the soil mechanics problems of offshore foundations
Zienkiewicz, O. C.; Norris, V. A.; Wilmicki, L. A.; Naylor, D. J.; Lewis, R. W.

Numerical methods in offshore engineering

Zienkiewicz, O. C. (EDITOR); Lewis, R. W. (EDITOR); Stagg, K. G. (EDITOR)

Publ.: John Wiley & Sons

361-411p., 1978

64 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

A Wiley-Interscience publ., illus.

Descriptors: *foundations; *soil mechanics; design; methods; *offshore; mathematical models; settlement; stability; models; cyclic loading; finite element analysis; statistical methods; bearing capacity; theoretical studies; engineering geology

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

949154 79-34952

Analysis of consolidation of earth and rockfill dams; appendices C-E: user's manual for computer program CON2D for the finite element analysis of consolidation in zoned dams

Cheng, C. S.; Duncan, J. M.

Univ. Calif., Coll. of Eng., Off. of Res. Serv., Berkeley, Calif., USA

86p., 1977

Subfile: B

Doc Type: REPORT Bibliographic Level: MONOGRAPHIC

Languages: English

Report No.: TE 77-3, Vol. 2

Availability: U. S. Army Eng. Waterw. Exp. Stn., Soils and Pavements Lab., Vicksburg, Miss., United States

Descriptors: *soil mechanics; *dams; *automatic data processing; *materials; properties; foundations; engineering geology; consolidation; earthdams; stress; strain; instruments; rockfill dams; saturation; finite element analysis; statistical methods; materials; properties; manuals; programs

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

948861 79-31398

Prediction of undrained behavior of sand

Int'l. P. V.
Am. Soc. Civ. Eng., Proc., J. Geotech. Eng. Div., 104: G16,
721-735p., 1978
CODEN: AUGEB6 ISSN: 0093-6405 28 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

illus., table

Descriptors: soil mechanics; materials; properties;
sand; materials, properties; clastic sediments; saturated
materials; granular materials; pore pressure; finite
element analysis; statistical methods; models; stress;
strain; strength; cohesionless materials; elastoplastic
materials

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

948231 79-25497

Tables of room temperature electrical properties for selected rocks and minerals with dielectric permittivity statistics

Ohno, G. R.
U. S. Geol. Surv., Open-File Rep., 79-993, 24p., 1979
CODEN: XGRDAG

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL: REPORT Bibliographic Level: MONOGRAPHIC

Language: English

Availability: U. S. Geol. Surv., Open-File Serv., Sect.,

Branch Distrib., Denver, Colo., United States

tables

Descriptors: rock mechanics; materials; properties;
electrical properties; minerals; rocks; dielectric
properties; statistical analysis; materials; properties;
data; temperature; room temperature

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

947728 79-31547

Stability of continental shelf and slope off Louisiana and Texas: geotechnical aspects

Watkins, D. J.; Kraft, L. M., Jr.
Serata Geomech., Berkeley, Calif., USA; McClelland Eng., USA

Framework, facies, and oil-trapping characteristics of the upper continental margin

Brown, A. H. (EDITOR); Moore, G. T. (EDITOR); Coleman, J. M. (EDITOR)

Am. Assoc. Pet. Geol., Stud. Geol., 7, 267-286p., 1978

CODEN: ASGEO3 ISBN: 0891810110 28 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

illus., sects., sketch map

Latitude: N273000; Longitude: W0980000; W0980000
Descriptors: Louisiana; Texas; engineering geology;
marine installations; slope stability; United States;
offshore; soil mechanics; finite element analysis;
statistical methods; continental shelf; continental slope;
loading; lithofacies; Mississippi Delta; slumps;
sedimentary structures; grabens; faults; mudflows; growth
faults; failure; cores; mechanism

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

947570 79-31347

Evaluation of the anisotropic behaviour of Brazilian test discs by the finite element method

Gowd, T. N.; Tulasi, Y. S.

Geophys. Res. Bull. (Hyderabad) 16: 1, 57-73p., 1978

CODEN: GREUDH IR REFS.

Subfile: B

Country of Publ.: India

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

illus., tables

Descriptors: rock mechanics; materials; properties;
anisotropic materials; materials, properties; Brazil tests;
finite element analysis; statistical methods; anisotropy;
composition; tensile strength; layered media; stress;
loading; mathematical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

946935 79-31486

Application of the initial stress method to soil-structure interaction

Roue, R. K.; Booker, J. R.; Ralaam, N. P.
Int. J. Numer. Methods Eng. 12: 5, 873-880p., 1978
CODEN: JNMRH ISSN: 0029-5981 10 REFS.

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Illustrations: tables
Descriptors: soil mechanics; theoretical studies; stress; finite element analysis; statistical methods; mathematical methods; foundations; plastic failure; shear strength; applications
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

941808 79-28337

Application of unsaturated flow properties in the design of geologic environments for radioactive waste storage facilities

Find, E. D.; Gillham, R. W.; Pickens, J. F.
Univ. Waterloo, Dep. Earth Sci., Waterloo, Ont., CAN

Finite elements in water resources; proceedings of the first international conference

Gray, W. G. (EDITOR); Pinder, G. F. (EDITOR); Brebbia, C. A. (EDITOR)
First international conference on finite elements in water resources, Princeton, N.J., United States, July 12-16, 1976

Publ: Pentech Press
P. 3, 133-3, 163p., 1977
ISBN: 0727306014 8 REFS.

Country of Publ.: United Kingdom
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

Illustrations: tables, sects.
Descriptors: waste disposal; methods; unsaturated materials; soil mechanics; granular materials; storage; radioactive materials; finite element analysis; statistical methods; mathematical models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

944804 79-28315

Immiscible flow by finite elements

Dalen, V.

Finite elements in water resources; proceedings of the first international conference

Gray, W. G. (EDITOR); Pinder, G. F. (EDITOR); Brebbia, C. A. (EDITOR)
First international conference on finite elements in water resources, Princeton, N.J., United States, July 12-16, 1976

Publ: Pentech Press
P. 3, 69-3, 90p., 1977
ISBN: 0727306014 18 REFS.

Country of Publ.: United Kingdom
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

Illustrations: none
Descriptors: engineering geology; ground water; petroleum engineering; movement; immiscible fluids; porous media; finite element analysis; statistical methods; porosity; hydrocarbons; organic materials; recovery; numerical analysis; mathematical models; one-dimensional models; two-dimensional models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

944756 79-28404

Settlement of footings on compacted clays

Ramaswamy, S. V.; Vaidyanathan, R.

International symposium on soil structure interaction

Jain, D. P. (chairperson)
International symposium on soil-structure interaction, Roorkee, India, Jan 3-7, 1977
Publ: Sarita Prakashan
251-257p., 1977
6 REFS.

Country of Publ.: India
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

Illustrations: none
Descriptors: foundations; soil mechanics; structures; settlement; footings; consolidated materials; clays; saturated materials; creep; finite element analysis; statistical methods; cohesive materials; shear; strain; elastoviscous materials
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

944755 79-28422

Finite element analysis of the behaviour of dilatant soils

Vallabhan, C. V. G.; Raghu, D.
Tex. Tech Univ., Civ. Eng. Dep., Lubbock, Tex., USA;
Tri-State Univ., USA

International symposium on soil structure interaction

Jain, D. P. (chairperson)
International symposium on soil-structure interaction,
Roorkee, India, Jan 3-7, 1977
Publ. Sarita Prakashan
189-195p., 1977
16 REFS.

Subfile: B

Country of Publ.: India

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

illus.

Descriptors: soil mechanics; materials; properties;
dilatant materials; materials; properties; dilatancy;
finite element analysis; statistical methods; sand; elastic
sediments; models; stress; triaxial tests; compression
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

944496 79-28250

A comparison between measured and computed response of Yuda

Dam during the July 8, 1978 earthquake; northern Japan

Matsumoto, N.
Bur. Reclam., Dams Branch, Denver, Colo., USA
43p., 1978
7 REFS.

Subfile: B

Doc Type: REPORT Bibliographic Level: MONOGRAPHIC

Language: English

Report No.: RFC ERC-78-4

illus., plate, tables

Latitude: N290000; N413000 Longitude: E1420000; E1380000
Descriptors: Japan; engineering geology; earthquakes;
dams; Asia; seismic response; 1976; Yuda Dam loading;
theoretical studies; finite element analysis; statistical
methods; mathematical methods; models; accelerograms;
seismographs; velocity; epicenters
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

943543 79-28406

**Application of an experimentally based non-linear
constitutive model of soils in laboratory and field tests**

Richards, B. G.
Aust. Geomech. J. 68, 20-30p., 1978
CODEN: AUGJEU ISSN: 0013-4458 12 REFS.

Subfile: B

Country of Publ.: Australia

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

illus.

Descriptors: soil mechanics; theoretical studies;
models; experimental studies; field studies; applications;
modified variable moduli model; cohesionless materials;
clays; materials; properties; tests; mathematical models;
finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

943415 79-25734

Earthquake risk in New Zealand; statistical estimates

Smith, W. D.

N. Z. J. Geol. Geophys., 21, 3, 313-327p., 1978

CODEN: NZDAY ISSN: 0028-8306 15 REFS.

Subfile: B

Country of Publ.: New Zealand

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

tables, sketch maps

Latitude: S473000; S343000 Longitude: E1783000; E1663000
Descriptors: New Zealand; engineering geology;
earthquakes; Australasia; urban planning; modified Mercalli
scale; intensity; acceleration; shallow-focus earthquakes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

943179 79-25471

Methods for reducing undrained shear strength of soft clay

Helander, K. V.

Statens Geotek. Inst., Rapp. --Swed. Geotech. Inst., Rep. 3,
50p., 1977
65 REFS.

Subfile: B

Country of Publ.: Sweden

Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

Language: English

illus., tables

Latitude: N551500; N691500 Longitude: E0241500; E0110000
Descriptors: Sweden; soil mechanics; engineering geology;
materials; properties; shear strength; methods;
materials; properties; clays; Europe; failure; collapsible
materials; statistical methods; mathematical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1988

DIALOG FILES: GEOREF - 61 82/Sep (Copr. American Geological Institute) (Item 671 of 1356) User 5208 2sep82

942246 79-25591

Automatic identification and evaluation of geotechnics)

zones for fill

Cubitt, J. M.; Andrews, D. E.; Denness, B.
Syracuse Univ., Dep. Geol., Syracuse, N.Y., USA
Assoc. Eng. Geol., Bull. 15: 4, 355-374p., 1978
CODEN: ENGEA9 ISSN: 0004-5691 7 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., table, geol. sketch map
Latitude: N520000; Longitude: W0004500
Descriptors: *England; *soil mechanics; *sediments;
*automatic data processing; *engineering geology; *fill;
*properties; clastic sediments; *geologic hazards; *fill;
statistical analysis; Europe; Milton Keynes; engineering
properties; materials; properties; classification; site
exploration; foundations; principal components analysis;
cluster analysis; statistical methods; contour maps; maps;
urban planning
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

939516 79-22721

Ground movements associated with the failure of a tunnel lining in the London Clay

Kengh, G. S.; Scott, C. R.

Large ground movements and structures

Geddes, J. D. (EDITOR)
Large ground movements and structures. Cardiff, Wales.
United Kingdom, July 4-7, 1977
Publ.: John Wiley & Sons
411-423p., 1978
ISBN: 0470264608 9 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
A Halsted Press Book, illus.
Latitude: N513000; Longitude: E0000000; W0001000
Descriptors: *England; *soil mechanics; *engineering geology; case studies; tunnels; land subsidence; settlement; Europe; Hertfordshire; Hertford; Cuffley; Painsbourne Tunnel; failure; theodolites; strength; undrained materials; triaxial tests; tests; stress; earth pressure; stiffness; Young's modulus; elastic constants; cores; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

939515 79-22677

Creep movements associated with excavations in rock

Emery, J. J.; Hanafy, E. A.; Franklin, J. A.

McMaster Univ., Dep. Civ. Eng. Mech., Hamilton, Ont., CAN

Large ground movements and structures

Geddes, J. D. (EDITOR)
Large ground movements and structures. Cardiff, Wales.
United Kingdom, July 4-7, 1977
Publ.: John Wiley & Sons
387-410p., 1978
ISBN: 0470264608 28 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
A Halsted Press Book, illus., tables
Descriptors: *rock mechanics; *tunnels; excavations; creep; simulation; plane strain; displacements; finite element analysis; statistical methods; stress; case studies; Ontario; Canada; limestone; carbonate rocks; shale; clastic rocks; elasticity; isotropic materials; orthotropic materials; uniaxial tests; Poisson's ratio; elastic constants
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

9395/5 79 22821

Analysis and prediction of ground subsidence due to coal mine entry collapse

Stephenson, R. W.; Aughenbaugh, N. B.
Univ. Missouri, Dep. Civ. Eng., Rolla, Mo., USA

Large ground movements and structures

Geddes, J. D. (EDITOR)
Large ground movements and structures, Cardiff, Wales, United Kingdom, July 4-7, 1977
Publ. John Wiley & Sons
100-115p., 1978
ISBN: 0470264608 7 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
A Halsted Press Book, illus., table, sects., sketch maps
Latitude: N374700; Longitude: W0885200; W0885600
Descriptors: Illinois; engineering geology; land subsidence; Williamson County; Herrin No. 6 Coal County; United States; Johnston City; coal; organic residues; mines; Washington Elementary School; damage; structures; statistical analysis; Lake Creek Mine; room and pillar mining; Herrin No. 6 Coal; boreholes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

939467 79 22787

Some studies of soil-structure interaction on a footing resting on soft clay

Raghu, D.
Tri-State Univ., Angola, Indiana, USA

Geotechnical aspects of soft clays

Brenner, R. P. (EDITOR); Brand, E. W. (EDITOR)
International symposium on soft clay, Bangkok, Thailand, July 5-6, 1977
Publ. Asian Inst. Technol.
691-701p., 1977
4 REFS.

Subfile: B
Country of Publ.: Thailand
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: foundations; soil mechanics; stability; deformation; footings; soft clays; models; finite element analysis; statistical methods; stress; bearing capacity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

939463 79-22666

Elastic-plastic, large deformation response of soft clay to footing load

Davidson, H. L.; Chen, W. F.
GAI Consult., Monroeville, Pa., USA

Geotechnical aspects of soft clays

Brenner, R. P. (EDITOR); Brand, E. W. (EDITOR)
International symposium on soft clay, Bangkok, Thailand, July 5-6, 1977
Publ. Asian Inst. Technol.
629-646p., 1977
21 REFS.

Subfile: B
Country of Publ.: Thailand
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: soil mechanics; foundations; deformation; stability; soft clays; footings; loading; elastic materials; plastic materials; models; finite element analysis; statistical methods; stress; strain; displacements; examples
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

939453 79-22657

Cracking and progressive failure of embankments on soft clay foundations

Chirapunt, S.; Duncan, J. M.
Univ Calif., Berkeley, Calif., USA

Geotechnical aspects of soft clays

Brenner, R. P. (EDITOR); Brand, E. W. (EDITOR)
International symposium on soft clay. Bangkok, Thailand, July 5-6, 1977
Publ: Asian Inst. Technol.
453-470p., 1977
17 REFS.

Subfile: B
Country of Publ.: Thailand
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: *slope stability; *soil mechanics; *foundations; *embankments; materials; properties; stability; failure; soft clays; materials; properties; stress; strain; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

939451 79-22638

**Instrumentation du remblai expérimental 'A' de Cubzac-les-Ponts
Instrumentation of the experimental embankment 'A' at Cubzac-les-Ponts**

Blondeau, F.; Mieussens, G.; Queyrol, D.; Levillain, J. P.; Peignaud, M.; Vogien, M.

Geotechnical aspects of soft clays

Brenner, R. P. (EDITOR); Brand, E. W. (EDITOR)
International symposium on soft clay. Bangkok, Thailand, July 5-6, 1977
Publ: Asian Inst. Technol.
419-475p., 1977
7 REFS.

Subfile: B
Country of Publ.: Thailand
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: French
illus

Latitude: N423000; Longitude: E0083000; W0050000
Descriptors: *France; *soil mechanics; engineering geology; experimental studies; slope stability; soft clays; Europe; Bordeaux; Dordogne River; foundations; organic materials; embankments; compressibility; instruments; finite element analysis; statistical methods; elasticity; plasticity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

939443 79-22800

Surcharge fill settlements on soft clay at the location of two air cooling towers

Sanglerat, G.; Soulier, L.; Doussot, M.; Bardot, F.; Cambot, B.; Tourat, J. P.

Geotechnical aspects of soft clays

Brenner, R. P. (EDITOR); Brand, E. W. (EDITOR)
International symposium on soft clay. Bangkok, Thailand, July 5-6, 1977
Publ: Asian Inst. Technol.
285-300p., 1977
10 REFS.

Subfile: B
Country of Publ.: Thailand
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., sects.
Descriptors: *foundations; *soil mechanics; structures; materials; properties; cooling towers; soft clays; materials; properties; power plants; elasticity; plasticity; overconsolidated materials; finite element analysis; statistical methods; settlement; penetration tests
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

939201 79-22604

Elasto-plastic finite element analyses of passive earth pressure tests

Wong, K. S.
Univ. of California, Berkeley, Calif., USA
400p., 1978
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Descriptors: *soil mechanics; earth pressure; models; sand; clastic sediments; finite element analysis; statistical methods; theoretical studies; mathematical models; experimental studies; elasticity; plasticity; failure; strain
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

937200 79-22597

Finite element analysis of sand as a hypoelastic material

Mysoore, R. K.
State Univ. of New York, Buffalo, Amherst, N.Y., USA
149p., 1978
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Descriptors: *soil mechanics; materials; properties; sand; materials, properties; clastic sediments; theoretical studies; mathematical models; models; finite element analysis; statistical methods; granular materials; elasticity; hypoelasticity; elastic properties; automatic data processing; stress
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

937198 79-22593

A numerical solution for the stresses and deformations in a pseudo-elastic soil system

Kasim, A. G.
Univ. of California, Berkeley, Calif., USA
313p., 1978
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Descriptors: *soil mechanics; *deformation; theoretical studies; stress; strain; elasticity; pseudoeasticity; mathematical models; models; finite element analysis; statistical methods; numerical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

937914 79-19483

Loi rhéologique incrementale pour les sols et application par la méthode des éléments finis
Incremental rheological law for soils and applications by the finite elements method

Boulon, M.; Chambon, R.; Darve, F. 1977
Rev. Fr. Geotech. 2, 5-21p., 20 REFS.

Subfile: B
Country of Publ.: France
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: French
Summary Languages: English
Illustrations: tables
Descriptors: *mathematical geology; *soil mechanics;

Methods: concepts; finite element analysis; statistical methods; applications
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

937221 79-19627

Application of the statistical method in control of compaction of soils

Guedes Soares, F. F.

Specialty session 2: Soil sampling

Hoshino, K. (EDITOR)
Ninth international conference on soil mechanics and foundation engineering. Tokyo, Japan, July 11, 1977
Int. Conf. Soil Mech. Found. Eng., Proc. 9, Volume 1, 109-113p., 1977
CODEN: PCSMB2 9 REFS.

Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Illustrations: table

Descriptors: *soil mechanics; applications; statistical methods; engineering geology; compaction; methods; equations; site exploration; Caia Dam; soils
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

937198 79-19887

Specialty Session 6: The probabilistic approach to soil mechanics design

Schulitze, E.

Ninth international conference on soil mechanics and foundation engineering. Tokyo, Japan, July 11, 1977
Int. Conf. Soil Mech. Found. Eng., Proc. 9, Vol. 3, 501-511p., 1977
CODEN: PCSMB2 10 REFS.

Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Illustrations: tables

Descriptors: *foundations; *soil mechanics; design; theoretical studies; failure; probability; equations; safety
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

937122 79-19641

Isolation of vibrations by concrete core walls

Haupt, W. A.
 Ninth international conference on soil mechanics and foundation engineering. Tokyo, Japan. July 11, 1977
 Int. Conf. Soil Mech. Found. Eng. Proc. 9. Vol. 2. 251-256p. 1977

CODEN: PCSMR2

Subfile: B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

Descriptors: foundations; materials; properties;
 retaining walls; theoretical studies; materials, properties;
 methods; finite element analysis; statistical methods;
 equations
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

937108 79-19989

The in situ shear behaviour of fissured soils

Williams, A. A. B.; Jennings, J. E.
 Ninth international conference on soil mechanics and foundation engineering. Tokyo, Japan. July 11, 1977
 Int. Conf. Soil Mech. Found. Eng. Proc. 9. Vol. 2. 169-176p. 1977

CODEN: PCSMR2 18 REFS.

Subfile: B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

Descriptors: soil mechanics; materials; properties;
 clays; materials, properties; experimental studies; shear
 strength; joints; fractures; analysis; failure; finite
 element analysis; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

937086 79-19564

Stability of a deep excavation bottom

Dolezalova, M.; Mikulinskova, V.; Skoch, V.
 Ninth international conference on soil mechanics and foundation engineering. Tokyo, Japan. July 11, 1977
 Int. Conf. Soil Mech. Found. Eng. Proc. 9. Vol. 2. 47-50 p. 1977

CODEN: PCSMR2 8 REFS.

Subfile: B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC
 Languages: English
 illus.

Descriptors: foundations; stability; excavations;
 applications; models; mining; mathematical models; finite
 element analysis; statistical methods; stress
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

937059 79-19889

Statistical evaluation of settlement observations

Schulze, E.; Sievering, W.
 Ninth international conference on soil mechanics and foundation engineering. Tokyo, Japan. July 11, 1977
 Int. Conf. Soil Mech. Found. Eng. Proc. 9. Vol. 1. 711-714p. 1977

CODEN: PCSMR2 9 REFS.

Subfile: B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

Descriptors: foundations; theoretical studies;
 settlement; statistical analysis; mathematical methods;
 data; methods; equations
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

937033 79-19708

Analysis of interference of strip footings by FEM

Khadilkar, B. S.; Varma, B. S.
 Ninth international conference on soil mechanics and foundation engineering. Tokyo, Japan. July 11, 1977
 Int. Conf. Soil Mech. Found. Eng. Proc. 9. Vol. 1. 597-600p. 1977

CODEN: PCSMR2 8 REFS.

Subfile: B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

Descriptors: foundations; experimental studies;
 footings; analysis; methods; finite element analysis;
 statistical methods; stress; strain; deformation;
 equations; data
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

936932 79-19565

The vane test: a critical appraisal

Donald, I. B.; Jordan, D. O.; Parker, R. J.; Toh, C. T.
Ninth international conference on soil mechanics and
foundation engineering, Tokyo, Japan, July 11, 1977
Int. Conf. Soil Mech. Found. Eng., Proc. 9, Vol. 1, 81-88
P., 1977

CODEN: PCSMB2 8 REFS.

Subfile: B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.: tables

Descriptors: *soil mechanics; applications; vane tests;

methods; clays; equations; techniques; Lancelotti; Varra

Delta; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

936796 79-19368

Matematicheskiye metody i dostovernost' gidrogeologicheskikh

i inzhenerno-geologicheskikh prognozov

Mathematical methods and the reliability of hydrogeological

and engineering geology forecasting

Gorokhovskiy, V. M.

Publ.: Izd. Nedra

75p., 1977

47 REFS.

Subfile: B

Country of Publ.: Union of Soviet Socialist Republics

Doc Type: BOOK Bibliographic Level: MONOGRAPHIC

Languages: Russian

illus.: tables

Descriptors: *ground water; *engineering geology; models;

methods; mathematical models; statistical analysis;

mathematical methods; hydrogeology; hydrology

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

936498 79-19407

The effect of de-icing agents on water adsorption phenomena

in rock aggregates

Rogers, C. A.

Univ. of Windsor, Windsor, Ont., CAN

unknownp., 1977

Subfile: B

Degree Level: Master's

Country of Publ.: Canada

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Latitude: N420000; N570000 Longitude: W0740000; W0950000

Descriptors: *rock mechanics; frost action; mechanism;

Ontario; Canada; cement materials; construction materials;
concrete; limestone; carbonate rocks; aggregate; water;
adsorption; statistical analysis; theoretical studies;
de-icing agents; de-icers

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

935964 79-19561

A statistical model of anisotropic fragmentation

Dienes, J. K.; Margolin, L. G.

Explosively produced fracture of oil shale; April-June 1978

Carter, W. J. (COMPILER)

Los Alamos Sci. Lab., [Rep.] 7438, 11-17p., 1978

CODEN: LASLCA

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL: REPORT Bibliographic Level: ANALYTIC

Languages: English

Availability: U. S. Dep. Energy, Washington, D.C., United

States

illus.

Descriptors: *rock mechanics; theoretical studies;

fractures; oil shale; statistical analysis; models;

anisotropy; failure; strength; stability

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

935342 79-19729

Sampling a glacial silty clay

Lamb, J. H.; Ritchie, J. M.

Wayne State Univ., Dep. Civ. Eng., Detroit, Mich., USA;

Mich. Dep. State Highw. and Transp., USA

Soil taxonomy and soil properties

Transp. Res. Rec. 642, 53-56p., 1977

CODEN: TRREDM 6 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL: Bibliographic Level: ANALYTIC

Languages: English

illus.: tables

Latitude: N421500; N423500 Longitude: W0831500; W0832500

Descriptors: *Michigan; *soil mechanics; engineering

geology; methods; statistical methods; United States;

clay; clastic sediments; site exploration; sampling;

moisture; undrained shear strength; design; Detroit

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

935111 79-19805

Stress analysis for a non-linear rock structure

Monita, N.
Jap. Assoc. Pet. Technol., J. 44: 1, 21-29p., 1979
CODEN: SGKVAO 10 REFS.

Subfile: B

Country of Publ.: Japan

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Japanese Summary Languages: English

Descriptors: *engineering geology; *rock mechanics;
petroleum engineering; loading; hydraulic fracturing;
stress; finite element analysis; statistical methods;
models; applications; strain; boreholes; nonlinear
materials

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

935110 79-19806

Regression analysis and error evaluation for parameter determination in petroleum engineering problems: (1st report). Error sensitivity analysis for search parameters and predicted performance

Monita, N.; Sugitaka, M.; Shina, M.; Inoue, N.
Jap. Assoc. Pet. Technol., J. 44: 1, 15-20p., 1979
CODEN: SGKVAO 6 REFS.

Subfile: B

Country of Publ.: Japan

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Japanese Summary Languages: English

Descriptors: *engineering geology; petroleum engineering;
regression analysis; mathematical models;
statistical analysis; prediction; accuracy

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

935089 79-19681

A finite element method for consolidation of clay

Johnson, C.
Comput. Methods Appl. Mech. Eng. 16: 2, 177-184p., 1978
CODEN: CMMECC 8 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *soil mechanics; materials; properties;
clays; materials; properties; finite element analysis;
statistical methods; elasticity; plasticity; mathematical
models

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

933731 79-16250

CHPEEF's views on earthquake-resistant design of earth dams

Anton, W. F.
East Bay Munic. Util. Dist., Oakland, Calif., USA
Am. Soc. Civ. Eng., Proc., J. Geotech. Eng. Div. 105: GT1,
85-88p., 1979
CODEN: AJGEB6

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: dams; *associations; design; engineering
geology; seismic response; California Water Power
Earthquake Eng.; embankment dams; California Water and Power
Earthquake Engineerin; stability; finite element analysis;
statistical methods; techniques; programs

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

933588 79-15733

Rock stress investigations and the tectonics of Iceland

Voight, B.; Haimson, B. C.; Jefferts, R.; Simon, R.
Pa. State Univ., Dep. Geosci., University Park, Pa., USA
The Geological Association of Canada, The Mineralogical
Association of Canada, The Geological Society of America (1st
annual meeting); 1978 joint annual meeting, Toronto, Ont.,
Canada, Oct. 23-26, 1978

Geol. Soc. Am., Abstr. Programs 10: 7, 510p., 1978

CODEN: GAAPBC

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English

Latitude: N634000; Longitude: W0133000; W0244500
Descriptors: *Iceland; *deformation; *rock mechanics;
tectonophysics; field studies; plate tectonics; stress;
Atlantic Ocean; Europe; hydraulic fracturing; boreholes;
rift zones; regional patterns; geothermal systems; finite
element analysis; statistical methods

Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

933490 79-16319

Engineering evaluation of seabed sediments by cluster analysis

Denness, B.; Cubitt, J. M.; McCann, D. M.; McQuillan, R.
Syracuse Univ., Dep. Geol., Syracuse, N.Y., USA

Recent advances in geomathematics: an international symposium: proceedings of papers presented at sessions sponsored by the International Association for Mathematical Geology at the 25th international geological congress in Sydney, Australia, August 1976

Merriman, D. F. (EDITOR)
25th international geological congress, Sydney, Australia, Aug. 1976

Comput. Geol. 2, 21-33p., 1978

14 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION

Level: ANALYTIC

Languages: English

illus.: tables, sketch maps

Latitude: N560000; Longitude: W0050000; W0053000

Descriptors: Scotland; sediments; engineering geology;

properties; marine installations; engineering properties;

Europe; Arran; ocean floors; cluster analysis; statistical

methods; materials; properties; pipelines; design;

offshore; site exploration

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Country of Publ.: United Kingdom

Doc Type: BOOK; CONFERENCE PUBLICATION

Level: ANALYTIC

Languages: English

illus.

Descriptors: marine installations; design; gravity

platforms; gravity structures; foundations; stability;

mathematical models; finite element analysis; soil

mechanics

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

933284 79-16586

Quasi-static design of foundations: including structure-foundation interaction

Smith, I. M.

Offshore soil mechanics; a course of lectures and practical exercises

George, P. (EDITOR); Wood, D. (EDITOR)
Cambridge University course on Offshore soil mechanics.

United Kingdom, March 29-April 2, 1976

Publ.: Cambridge Univ., Dep. Eng. Lloyd's Register of Shipping

307-325p., 1976

14 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: BOOK; CONFERENCE PUBLICATION

Level: ANALYTIC

Languages: English

illus.

Descriptors: marine installations; design; gravity

platforms; gravity structures; foundations; stability;

mathematical models; finite element analysis; soil

mechanics

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

933287 79-16587

Analysis of dynamically loaded structures and foundations

Smith, I. M.

Offshore soil mechanics; a course of lectures and practical exercises

George, P. (EDITOR); Wood, D. (EDITOR)
Cambridge University course on Offshore soil mechanics.

United Kingdom, March 29-April 2, 1976

Publ.: Cambridge Univ., Dep. Eng. Lloyd's Register of Shipping

251-262p., 1976

6 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: BOOK; CONFERENCE PUBLICATION

Level: ANALYTIC

Languages: English

illus.

Descriptors: marine installations; foundations; design;

seismic response; mathematical models; gravity

platforms; finite element analysis; statistical methods;

offshore; soil mechanics

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

932260 79 16240

Influence of embedment of a reactor building on the seismic behaviour

Altes, J.; Koschmieder, D.

Rock dynamics and geophysical aspects

Borm, G. W. (EDITOR)

Advanced study institute and international conference on dynamical methods in soil and rock mechanics, Karlsruhe, Germany, Federal Republic of, Sept 5-16, 1977

Publ. A. A. Balkema

3. 227-236p., 1978

ISBN 9061910269 9 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.

Descriptors: nuclear facilities; underground installations; soil mechanics; earthquakes; design; theoretical studies; seismic response; mathematical methods; methods; finite element analysis; statistical methods; models; mathematical models; acceleration; seismic risk; stability

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

932259 79 16411

Deterministic and probabilistic soil-structure interaction analysis by finite elements; workshop discussion on J. Lysmer's main lecture

Kausel, E.; Lysmer, J.; Sachs, K.; Roesset, J. M.

Rock dynamics and geophysical aspects

Borm, G. W. (EDITOR)

Advanced study institute and international conference on dynamical methods in soil and rock mechanics, Karlsruhe, Germany, Federal Republic of, Sept. 5-16, 1977

Publ. A. A. Balkema

3. 223-226p., 1978

ISBN 9061910269 14 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

Note: For original reference, see J. Lysmer in Dynamical methods in soil and rock mechanics, 1977.

Descriptors: soil mechanics; methods; mathematical methods; finite element analysis; statistical methods; models

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

932257 79 16271

Numerical analysis of dynamic rock-structure interaction

Borm, G. W.

Rock dynamics and geophysical aspects

Borm, G. W. (EDITOR)

Advanced study institute and international conference on dynamical methods in soil and rock mechanics, Karlsruhe, Germany, Federal Republic of, Sept. 5-16, 1977

Publ. A. A. Balkema

3. 201-215p., 1978

ISBN 9061910269 17 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Language: English

illus.

Descriptors: rock mechanics; methods; mathematical methods; site exploration; models; mathematical models; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

932251 79-16379

Dynamic finite element modeling of near field ground motion from the San Fernando 1971 earthquake
Harding, S. T.; Perkins, D.
U. S. Geol. Surv., Denver, Colo., USA

Rock dynamics and geophysical aspects

Borm, G. W. (EDITOR)
Advanced study institute and international conference on dynamical methods in soil and rock mechanics, Karlsruhe, Germany, Federal Republic of, Sept. 5-16, 1977
Publ. A. A. Balkema
3. 67 Bp., 1978
ISBN 9061910269 23 REFS.
Subfile: B

Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: sketch map
Latitude: N342000; Longitude: W1183000; W1183000
Descriptors: California; engineering geology; earthquakes; United States; 1971; San Fernando; models; ground motion; mathematical methods; mathematical models; finite element analysis; statistical methods; techniques; mechanism; focus; causes; epicenters; strong motion; accelerograms; faults; prediction
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

932242 79-16588

Linearised and truly nonlinear dynamic response of offshore structure-foundation systems

Smith, I. M.; Molenkamp, F.
Advanced study institute and international conference on dynamical methods in soil and rock mechanics, Karlsruhe, Germany, Federal Republic of, Sept. 5-16, 1977
Publ. A. A. Balkema
2. 294 320p., 1978
ISBN 9061910250 28 REFS.
Subfile: B

Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: tables
Descriptors: soil mechanics; foundations; marine installations; theoretical studies; loading; response; mathematical methods; models; finite element analysis; statistical methods; deformation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

932241 79-16488

Numerical solution of problems involving explosive loading

Nelson, I.
Weidlinger Assoc., New York, N.Y., USA
Advanced study institute and international conference on dynamical methods in soil and rock mechanics, Karlsruhe, Germany, Federal Republic of, Sept. 5-16, 1977
Publ. A. A. Balkema
2. 239-297p., 1978
ISBN: 9061910250 24 REFS.
Subfile: B

Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: tables
Descriptors: soil mechanics; rock mechanics; foundations; automatic data processing; explosions; theoretical studies; seismic response; engineering geology; loading; deformation; methods; mathematical methods; finite element analysis; statistical methods; failure; current research
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

932229 79-16487

Constitutive models for use in numerical computations

Nelson, I.
Weidlinger Assoc., New York, N.Y., USA
Advanced study institute and international conference on dynamical methods in soil and rock mechanics, Karlsruhe, Germany, Federal Republic of, Sept. 5-16, 1977
Publ. A. A. Balkema
2. 45-97p., 1978
ISBN: 9061910250 32 REFS.
Subfile: B

Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.:
Descriptors: soil mechanics; rock mechanics; methods; mathematical methods; models; mathematical models; finite element analysis; statistical methods; theoretical studies; current research; stress; strain; deformation; loading; testing
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

930884 79 16311

Finite element analyses of arch abutments

D'Appolonia, E.; Shaw, D. E.; Richard, J.; Raynaud, D. A.
D'Appolonia Consult. Eng., Pittsburgh, Pa., USA

Rock engineering for foundations and slopes: proceedings of a specialty conference, Vol. 1

Anonymous
Rock engineering for foundations and slopes.
Colo.: United States, August 15-18, 1976
Publ.: Am. Soc. Civ. Eng.
55-81p., 1976

Subfile: B
Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

illus., tables
Latitude: N440000; Longitude: W0740000; W0750000
Descriptors: "Rock mechanics"; engineering geology
case studies; arch abutments; Canada; Montreal;
analysis; finite element analysis; statistical methods;
supporting capacity; load cells; grouting; techniques;
materials, properties; clays; stress
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

930806 79-13182

Infiltration and laboratory permeability studies of spoils from selected coal strip mines, Powder River basin, Wyoming and Montana

Farkas, F. S.
South Dakota School of Mines & Technology, Rapid City, S.D., USA

unknownp., 1976
Subfile: B
Degree Level: Master's
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Latitude: N440000; Longitude: W1040000; W1080000
Descriptors: "Montana"; "Wyoming"; engineering geology;
waste disposal; United States; Powder River basin; coal;
organic residues; strip mining; spoils; deposits;
infiltration; permeability; experimental studies; hydraulic conductivity; hydraulics; hydrology; properties;
statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

930526 79 13753

Seismic soil-structure interaction by finite elements case studies

Pandya, V.; Setlur, A. V.
Flour Pioneer, Chicago, Ill., USA
Second ASCE specialty conference on structural design of nuclear plant facilities, New Orleans, La., United States, December 8-10, 1975
ASCE Spec. Conf. Struct. Des. Nucl. Plant Facil. 2, B26-B36p., 1976
8 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Descriptors: "nuclear facilities"; "foundations"; soil mechanics; seismic response; case studies; soil-structure interaction; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

929488 79-13263

Evaluation of probability of seismic liquefaction

Ferritto, J. M.
Am. Soc. Civ. Eng., Proc., J. Tech. Coun. ASCE 103: 1C1, 65-73p., 1977
11 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: "geologic hazards"; "soil mechanics"; earthquakes; theoretical studies; seismic risk; liquefaction; ground motion; triaxial tests; site exploration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

928371 79-12254

Estimating densities in contoured orientation diagrams

Ramsden, J. ; Cruden, D. M.
Alberta Res. Council, Atmos. Sci. Div., Edmonton, Alberta,
CAN, Univ. Alberta, CAN
Geol. Soc. Am. Bull. 90 3, 1 229-1 231, 11 580-11 607
1979

CODEN: BUCMAF

Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English
Print, microfiche, illus., tables
Descriptors: automatic data processing; structural geology
; structural analysis; methods; preferred orientation;
digital simulation; statistical methods; diagrams;
theoretical studies; graphic methods; density; orientation;
contour diagrams; mathematical models; models; fabric;
rock mechanics

Section Headings: 16 (STRUCTURAL GEOLOGY)

927732 79-09435

**Some physical rock parameters of New York City water tunnel
3 and their relation to ground water inflows**

Dvirnyk, M.

Brooklyn Coll., Brooklyn, N.Y., USA

unknownp., 1976

Subfile: B

Degree Level: Master's

Country of Publ.: United States

Doc Type: THESES Bibliographic Level: MONOGRAPHIC

Language: English
Latitude: N403000 Longitude: W0734500; W0740500
Descriptors: New York; ground water; rock mechanics;
engineering geology; surveys; materials; properties;
tunnels; physical properties; United States; movement;
hydraulics; hydrodynamics; joints; fractures; statistical
analysis; materials; properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

927087 79-09480

**Statisticheskoye modelirovaniye stadiy opolznevoego protsesssa
Statistical modeling of the stages of creep processes**

Budarenko, A. A.

Gidrotekhnicheskkiye i geodinamicheskiye protsessy

Golmanov, A. I. (EDITOR)

Vses. Nauchno Issled. Inst. Gidrotekhn. i Inzh. Geol., Tr.
M. S. 115, 52 56p., 1977
CODEN: GSAI 1975 5 REFS

Subfile: B

Country of Publ.: Union of Soviet Socialist Republics
Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: Russian
Descriptors: soil mechanics; materials; properties;
creep; mathematical models; models; statistical methods;
materials, properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

926683 79-09569

**Statistical activities during 1978 and the design and
initial analysis of nuclear site studies**

Gilbert, R. O.; Essington, E. H.; Brady, D. N.; Doctor, P.
G.; Eberhardt, L. L. Lab., Richland, Wash., USA; Los Alamos
Sci. Lab., USA

**Transuranics in desert ecosystems; Nevada Applied Ecology
Group**

White, M. G. (EDITOR); Dunaway, P. B. (EDITOR); Wierman, D.
I. (EDITOR)

331-366p., 1977

23 REFS

Subfile: B

Doc Type: REPORT Bibliographic Level: ANALYTIC

Language: English

Report No.: NVO-181; UC-11

Availability: NTIS, Springfield, Va., United States

Illus., tables

Descriptors: Nevada; americium; cesium; plutonium;
cobalt; engineering geology; geochemistry; nuclear
facilities; soils; statistical analysis; site exploration;
United States; pollution; radionuclides; pollutants

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

926631 79-09573

The use of GRASP, a finite element program, to model faulted gas reservoirs of the southern North Sea basin
Goldwater, M. H.; Collins, P. A.; Taylor, B. A.

European offshore petroleum conference & exhibition; Volume 2

Anonymous
Proceedings of the European offshore petroleum conference & exhibition, London, United Kingdom, Oct. 24-27, 1978
Publ.: Soc. Petroleum Eng.
219-232p., 1978
14 REFS.

Subfile: B
Country of Publ.: United Kingdom
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

illus.: sketch maps
Descriptors: North Sea; engineering geology; automatic data processing; petroleum engineering; GRASP; finite element analysis; statistical methods; natural gas; faults; subsurface reservoirs; mathematical models; models; Atlantic Ocean; two-dimensional models; indelible Field; Leman Field; Viking Field
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

926453 79-09877

Interpretation of flat jack tests and field measurements in tunnels by means of finite element analyses
Witte, W.

Field measurements in rock mechanics; Volume 2

Kovari, K. (EDITOR)
Field measurements in rock mechanics, Zurich, Switzerland, April 4-6, 1977
Publ.: A. A. Balkema
997-1018p., 1977
11 REFS.

Subfile: B
Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

illus.: sketch map
Latitude: N50N000; Longitude: E0081000; E0080500
Descriptors: rock mechanics; soil mechanics; West Germany; techniques; engineering geology; flat jack tests; tunnels; interpretation; finite element analysis; statistical methods; methods; deformation; field studies; Germany; Europe; Wiesbaden; Ernstbach; dams; reservoirs; surface reservoirs; site exploration; Stuttgart; Hesse
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

926451 79-09485

Rockmeter deformations at the Emossion arch dam; comparison between computation and measurements

Bossonney, C.
Motor-Columbus Consult. Eng., Baden, CHE

Field measurements in rock mechanics; Volume 2

Kovari, K. (EDITOR)
Field measurements in rock mechanics, Zurich, Switzerland, April 4-6, 1977
Publ.: A. A. Balkema
969-984p., 1977
8 REFS.

Subfile: B
Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

illus.: tables
Descriptors: Switzerland; France; rock mechanics; engineering geology; deformation; dams; Europe; Emossion Dam; arch dams; elasticity; plasticity; finite element analysis; statistical methods; abutments; foundations; field studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

926447 79-09511

Consideration of natural stresses in the rock mass and the technology of construction with respect to the calculation of underground opening by means of the finite element method
Christov, T.; Iliev, S.

Field measurements in rock mechanics; Volume 2
Kovari, K. (EDITOR)
Field measurements in rock mechanics. Zurich, Switzerland, April 4-6, 1977
Publ: A. A. Balkema
905-918p., 1977
2 REFS.
Subfile: B
Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Descriptors: automatic data processing; rock mechanics; engineering geology; deformation; stress; finite element analysis; statistical methods; construction; strain; underground installations; field studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

926446 79-09507

Interpretation of in situ deformation behavior of a rectangular test shaft using finite element method
Chan, S. S. M.; Beus, M. J.

Field measurements in rock mechanics
Kovari, K. (EDITOR)
Field measurements in rock mechanics. Zurich, Switzerland, April 4-6, 1977
Publ: A. A. Balkema
889-903p., 1977
11 REFS.
Subfile: B
Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Illustrations: tables, sketch map
Latitude: N472500; N473000 Longitude: W1155000; W1160000
Descriptors: rock mechanics; engineering geology; field studies; deformation; Kootenai County; United States; Coeur d'Alene; silver; ore deposits; quartzite; metamorphic rocks; stress; strength; finite element analysis; statistical methods; Caladay; Wallace
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

A contribution to the common application of field measurements and the finite element method
Dolazalova, M.
Field measurements in rock mechanics
Kovari, K. (EDITOR)
Field measurements in rock mechanics. Zurich, Switzerland, April 4-6, 1977
Publ: A. A. Balkema
873-888p., 1977
18 REFS.
Subfile: B
Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Descriptors: underground installations; construction; design; finite element analysis; statistical methods; field studies; methods; techniques
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

926444 79-09797

Interpretation of field measurements in undersea tunnels with the aid of mathematical models
Sakurai, S.

Field measurements in rock mechanics
Kovari, K. (EDITOR)
Field measurements in rock mechanics. Zurich, Switzerland, April 4-6, 1977
Publ: A. A. Balkema
859-871p., 1977
3 REFS.
Subfile: B
Country of Publ.: Netherlands
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Illustrations: chart
Latitude: N412000; N414000 Longitude: E1413000; E1400000
Descriptors: Japan; engineering geology; marine installations; mathematical models; measurements; submarine installations; interpretation; Asia; Seikan Tunnel; Honshu; Hokkaido; field studies; structures; deformation; strain; shear strength; stress; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

926445 79-09530

926412 79-09607

Rock deformability measured in situ: problems and solutions

Heuze, F. E.; Salem, A.
Univ. Colo. Dep. Civ. Eng. Boulder, Colo., USA

Field measurements in rock mechanics; Volume 1

Kovari, K. (EDITOR)
Field measurements in rock mechanics. Zurich, Switzerland, April 4-6, 1977
Publ. A. A. Balkema
375-387p., 1977
22 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.: tables

Descriptors: rock mechanics; deformation; measurement; in situ; boreholes; finite element analysis; statistical methods; plate-bearing tests; flat jack tests; dilatometer tests; loading; techniques; field studies

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

926411 79-09482

Flat jack test and determination of mechanical characteristics

Bonvallet, J.; Dejean, M.

Field measurements in rock mechanics; Volume 1

Kovari, K. (EDITOR)
Field measurements in rock mechanics. Zurich, Switzerland, April 4-6, 1977

Publ. A. A. Balkema

361-374p., 1977

2 REFS.

Subfile B

Country of Publ.: Netherlands

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: rock mechanics; techniques; flat jack tests; mines; quarries; elasticity; creep; stress; strain; mathematical models; models; field studies; theoretical studies; finite element analysis; statistical methods; three-dimensional models; deformation

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

924420 79-03387

Mechanical properties of cores obtained from the unleached

saline zone, Piceance Creek basin, Rio Blanco County, Colo.

Horning, F. G.; Hooker, V. E.
Bur. Mines, Denver Mining Res. Cent., Denver, Colo., USA
U. S. Bur. Mines, Rep. Invest. 8297, 21p., 1978
CONFN. XBMIA6 14 REFS.

Subfile B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

Languages: English

illus.: tables, plates, sketch maps

Latitude N392000; Longitude W1081500; W1081500; W1081500

Descriptors: Colorado; rock mechanics; engineering

geology; materials; properties; physical properties; Rio

Blanco County; Garfield County; Mesaverde Group; Ohio Creek

Conglomerate; Fort Union formation; Wasatch formation;

Green River formation; Uinta formation; United States;

Piceance Creek basin; mechanical properties; experimental

studies; tunnels; young's modulus; elastic constants;

Poisson's ratio; controls; materials; properties;

Cretaceous; Mesozoic; Tertiary; Cenozoic; stratigraphy;

geomorphology; well-logging; cores; triaxial tests; Brazil

tests; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

922909 79-06197

Rock weathering on the molecular level

Harder, P.
Univ. Windsor, Dep. Geol., Windsor, Ont., CAN.

Decay and preservation of stone

Winkler, F. M. (EDITOR)
Symposia on decay and preservation of stone. The Geological Society of America, annual meetings, 1977

Eng. Geol. Case Hist. 11, 47-51p., 1978

CODEN EGCHAH 24 REFS.

Subfile B

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

tables

Descriptors: weathering; rock mechanics; analysis;

failure; statistical analysis; engineering geology;

building stone; construction materials; experimental studies;

frost action; chemical weathering; physical weathering;

porosity; data

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

922904 79-06178

Absorption and other properties of carbonate rock affecting soundness of aggregate

Harvey, R. D.; Baxter, J. W.; Fraser, G. S.; Smith, C. B.
Ill. State Geol. Surv., Urbana, Ill., USA

Decay and preservation of stone

Winkler, E. M. (EDITOR)
Symposia on decay and preservation of stone: The Geological Society of America, annual meetings, 1977
Eng. Geol. Case Hist. 11, 7-16p., 1978
CODEN: EGGIAH 18 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

Tables, sketch map
Latitude: N370000, N423000 Longitude: W0873000; W0913000
Descriptors: Illinois; construction materials; rock mechanics; engineering geology; properties; materials; highways; aggregate; United States; carbonate rocks; absorption; statistical analysis; regression analysis; standard tests; ASTM standards; materials; properties; data
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

922779 79-05965

Design analysis of annular tunnels for super conductive energy storage using the finite element method

Fuh, G. F.
Univ. of Wisconsin, Madison, Wis., USA
246p., 1978
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Descriptors: tunnels; rock mechanics; design; failure; finite element analysis; statistical methods; stress; loading; magnets; storage; stabilization; rockbolting; theoretical studies; field studies; granite; granite-granodiorite family
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

922683 79-06134

Prediction of shoreline erosion trends from synoptic beach surveys, Rhode Island coast

Fisher, J. J.; Gaultie, S. G.
Univ. R.I., Dep. Geol., Kingston, R.I., USA; Shell Explor. USA

The Geological Association of Canada, The Mineralogical Association of Canada, The Geological Society of America (91st annual meeting); 1978 joint annual meeting. Toronto, Ont., Canada, Oct. 23-26, 1978
Geol. Soc. Am., Abstr. Programs 10: 7, 401-402p., 1978
CODEN: GAAPBC

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

Latitude: N415000 Longitude: W0710700; W0715000
Descriptors: Rhode Island; automatic data processing; engineering geology; shorelines; discriminant analysis; United States; beaches; erosion; prediction; statistical analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

922316 79-06190

A quantitative model of dilatancy in dry rock and its application to Westerly Granite

Holcomb, D. J.
Univ. Colo./NDA, Coop. Inst. Res. Environ. Sci. Boulder, Colo., USA
J. Geophys. Res. 83: B10, 4941-4950p., 1978
CODEN: JGREA2 16 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Descriptors: rock mechanics; deformation; theoretical studies; strain; Westerly Granite; dilatancy; cracks; microcracks; stress; statistical analysis; mathematical models; dry rocks; brittle materials; loading; granite; granite-granodiorite family; earthquakes; prediction; precursors; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

921325 79-06135
Axisymmetric compression of a Mohr-Coulomb medium around a circular hole

Florence, A. L.; Schuer, L. E.
SRI Int., Poulter Lab., Menlo Park, Calif., USA 367 3/9p
1978
Int. J. Numer. Anal. Methods Geomech. 2 4.
ISSN 0363-9061 5 REFS.

Subfile B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: table
Descriptors: rock mechanics; loading; compression;
Mohr envelope; Coulomb's law; finite element analysis;
statistical methods; plastic materials; elastic materials;
numerical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

921324 79-06323

Slipping strip analysis of reinforced earth

Baylor, R. J.; Richards, H.
Int. J. Numer. Anal. Methods Geomech. 2 4. 343-366p
1978
ISSN 0363-9061 18 REFS.

Subfile B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables, sects.
Descriptors: soil mechanics; materials; properties;
reinforced earth; materials; properties; plane strain;
homogeneous materials; elastic materials; algorithms; Mohr
envelope; Coulomb's law; shear modulus; elastic constants;
finite element analysis; statistical methods; slip;
mathematical models; models; displacements; Young's modulus;
cohesive materials; stress; Poisson's ratio
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

921319 79-06099

Numerical approximations in pile-driving analysis

Davis, R. O.; Phelan, P. J.
Int. J. Numer. Anal. Methods Geomech. 2 3. 303-310p
1978
ISSN 0363-9061 9 REFS.

Subfile B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables
Descriptors: soil mechanics; loading; plasticity;

materials, properties; finite element analysis; statistical
methods; response; failure; prediction; bearing capacity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

921315 79-06102

Finite element simulation of freezing processes in soils

Del Giudice, S.; Comini, G.; Lewis, R. W.
Int. J. Numer. Anal. Methods Geomech. 2 3. 223-235p
1978
ISSN 0363-9061 16 REFS.

Subfile B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: sects.
Descriptors: soil mechanics; frost action; simulation;
finite element analysis; statistical methods; stabilization;
numerical analysis; mathematical models;
two dimensional models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

921250 79 06039

The sensitivity of low probability seismic risk estimation to seismicity model parameters in eastern Canada

Berry, M. J.; Weichert, D. H.; Basham, P. W.
Earth Phys. Branch, Ottawa, Ont., CAN
Canadian Geophysical Union: 5th annual meeting. London.
Ont., Canada. May 15-17, 1978
Eos (Am. Geophys. Union, Trans.) 59 12. 1033p
1978
CODEN: EOSIAU

Subfile B
Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Latitude: N430000 Longitude: W0520000: W0850000
Descriptors: Canada; Quebec; Ontario; Maritime Provinces
; engineering geology; nuclear facilities; geologic
hazards; seismic risk; seismology; seismicity; site
exploration; seismotectonics; models; tectonics;
earthquakes; ground motion
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

921119 79-06124

Geotechnical performance of a tunnel in till

Eisenstein, Z.; Thomson, S.
Univ. Alta., Dep. Civil Eng., Edmonton, Alta., CAN
Can. Geotech. J. 15, 3, 332-345p., 1978
CODEN: CGJDAH 13 REFS.
Subfile: B
Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus.: table
Latitude: N533000 Longitude: W1133000; W1133000
Descriptors: Alberta; engineering geology; tunnels;
Canada; Edmonton; site exploration; materials; properties;
till; clastic sediments; finite element analysis;
statistical methods; settlement; stress
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919828 79-02285

Static and seismic landslide susceptibility

Waczorek, G. F.
Univ. Calif., Dep. Civ. Eng., Berkeley, Calif., USA
The Geological Society of America, Cordilleran Section, 74th
annual meeting, Tempe, Ariz., United States, March 29-31,
1978
Geol. Soc. Am., Abstr. Programs 10, 3, 153p., 1978
CODEN: GAAPBC
Subfile: B
Country of Publ.: United States
Doc Type: SERIAL CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Latitude: N371500 Longitude: W1221500; W1224000
Descriptors: California; Pacific Coast; geomorphology;
engineering geology; mass movements; slope stability;
geologic hazards; landslides; Santa Mateo County; United
States; Santa Cruz Mountains; Central California; La Honda;
San Francisco region; statistical analysis; seismicity;
earthquakes; susceptibility; debris flows; rock falls
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919728 79-02166

**Dureza de Schmidt vs propiedades mecanicas en muestras de
roca; correlacion estadistica
Schmidt hardness versus mechanical properties in rock
samples; statistical correlation**

Munoz, R. H.
Minerales 33, 142, 37-44p., 1978
CODEN: MINCAN 5 REFS.
Subfile: B
Country of Publ.: Chile

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Spanish Summary Languages: English
illus.: tables
Descriptors: rock mechanics; materials; properties;
Schmidt hardness; compressive strength; Young's modulus;
elastic constants; Poisson's modulus; angle of internal
friction; shear strength; statistical methods; experimental
studies; materials; properties; methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919539 79-01993

**Construction of the underground car park at the Palace of
Westminster, London; discussion**

Rurland, J. B.

Deep foundations and deep excavations

Anonymous
Sixth European conference on soil mechanics and foundation
engineering, Deep foundations and deep excavations, Vienna,
Austria, March 22-24, 1976
Eur. Conf. Soil Mech. Found. Eng., Proc. 6, Vol. 2.2,
47-49p., 1976
CODEN: ESMFA9 5 REFS.
Subfile: B
Country of Publ.: International

Doc Type: SERIAL CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.

Descriptors: England; engineering geology; foundations;
Great Britain; Europe; London; construction; excavations;
slope stability; diaphragm walls; soil mechanics;
stabilization; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919564 79-02014

Underground opening and deep excavation in jointed rock
Dolezalova, M

Deep foundations and deep excavations

Anonymous
Sixth European conference on soil mechanics and foundation engineering; Deep foundations and deep excavations. Vienna, Austria, March 22-24, 1976
Eur. Conf. Soil Mech. Found. Eng. Proc. 6. Vol. 1. 297-304p. 1976
CODEN ESMFA9 7 REFS.

Subfile B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages: English Summary Languages: French
illus.

Descriptors: rock mechanics; fractures; excavations;
distribution; stress; finite element analysis; joints;
statistical methods; deformation; failure
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919516 79-01972

Stability of slopes in variational and probabilistic solutions
Biermatowski, K.

Deep foundations and deep excavations

Anonymous
Sixth European conference on soil mechanics and foundation engineering; Deep foundations and deep excavations. Vienna, Austria, March 22-24, 1976
Eur. Conf. Soil Mech. Found. Eng. Proc. 6. Vol. 1. 37 p. 1976
CODEN ESMFA9 10 REFS.

Subfile B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages: English Summary Languages: German
illus; table
Descriptors: slope stability; theoretical studies;
stress; shear stress; statistical methods; probabilistic
methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919119 79-01958

Boundary element methods in geomechanics
Bauerjoss, P. K.; Butterfield, R.

Finite elements in geomechanics

Gudehus, G. (EDITOR)
Finite elements in geomechanics. Karlsruhe, Germany.
Federal Republic of, Sept., 1975
Publ. John Wiley & Sons
529-570p. 1977
61 REFS.

Subfile B
Country of Publ.: United Kingdom
Doc Type: BOOK: CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages: English
illus.

Descriptors: rock mechanics; soil mechanics; methods;
finite element analysis; boundary; flow; mathematical
models; models; transient processes; statistical methods;
elastoplasticity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919118 79-02043

Accuracy in data input and in stress calculations

Gallagher, R. H.

Finite elements in geomechanics

Gudehus, G. (EDITOR)
Finite elements in geomechanics. Karlsruhe, Germany.
Federal Republic of, Sept., 1975
Publ. John Wiley & Sons
513-528p. 1977
37 REFS.

Subfile B
Country of Publ.: United Kingdom
Doc Type: BOOK: CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages: English
illus.

Descriptors: rock mechanics; soil mechanics; methods;
finite element analysis; statistical methods; mathematical
models; models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919117 79-02135

Interaction between water flow phenomena and the mechanical behaviour of soil or rock masses

Louis, C.; Desseigne, J. L.; Feuga, B.

Finite elements in geomechanics

Gudehus, G. (EDITOR)

Finite elements in geomechanics, Karlsruhe, Germany, Federal Republic of, Sept., 1975

Publ: John Wiley & Sons

479-51p., 1977

37 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.

Descriptors: *soil mechanics; *rock mechanics; methods; finite element analysis; flow regime; ground water; pore water; fractures; joints; aquifers; dams; porous media; movement; hydraulic conductivity; mathematical models; statistical methods; underground installations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919116 79-02289

New design concept for underground openings in rock

Witte, W.

Finite elements in geomechanics

Gudehus, G. (EDITOR)

Finite elements in geomechanics, Karlsruhe, Germany, Federal Republic of, Sept., 1975

Publ: John Wiley & Sons

413-476p., 1977

20 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.; tables

Descriptors: *underground installations; *tunnels; *West Germany; design; engineering geology; construction; rock mechanics; stability; fractures; joints; stress; strain; mathematical models; models; finite element analysis; statistical methods; case studies; Germany; Europe; Nuerenberg; Prem; three-dimensional models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919115 79-02119

The elasto-plastic analysis in the design practice of underground openings

Kovari, K.

Finite elements in geomechanics

Gudehus, G. (EDITOR)

Finite elements in geomechanics, Karlsruhe, Germany, Federal Republic of, Sept., 1975

Publ: John Wiley & Sons

377-412p., 1977

36 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.

Descriptors: *underground installations; *tunnels; *rock mechanics; *soil mechanics; theoretical studies; mathematical models; elastoplasticity; methods; design; models; loading; finite element analysis; statistical methods; strain; strength; stability
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919114 79-02055

Analysis in jointed rocks

Goodman, R. E.

Finite elements in geomechanics

Gudehus, G. (EDITOR)

Finite elements in geomechanics, Karlsruhe, Germany, Federal Republic of, Sept., 1975

Publ: John Wiley & Sons

351-375p., 1977

20 REFS.

Subfile: B

Country of Publ.: United Kingdom

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.

Descriptors: *rock mechanics; deformation; fractures; joints; materials; properties; stress; shear stress; mathematical models; models; shear strength; dilatancy; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

- 919113 79-02287
Finite elements for foundations, joints and fluids
 Wilson, F. L.
 Finite elements in geomechanics
 Gudehus, G. (EDITOR)
 Finite elements in geomechanics, Karlsruhe, Germany.
 Federal Republic of, Sept., 1975
 Publ: John Wiley & Sons
 319-350p., 1977
 16 REFS.
 Subfile: B
 Country of Publ.: United Kingdom
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus.
 Descriptors: *reservoirs; *foundations; *soil mechanics;
 *rock mechanics; *dams; methods; finite element analysis;
 mathematical models; models; statistical methods;
 deformation; three-dimensional models; earthquakes;
 two dimensional models; surface reservoirs
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)
- 919114 79-02269
Generation and dissipation of pore-water pressures
 Verrulft, A.
 Finite elements in geomechanics
 Gudehus, G. (EDITOR)
 Finite elements in geomechanics, Karlsruhe, Germany.
 Federal Republic of, Sept., 1975
 Publ: John Wiley & Sons
 297-317p., 1977
 14 REFS.
 Subfile: B
 Country of Publ.: United Kingdom
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus.
 Descriptors: *soil mechanics; *automatic data processing;
 methods; engineering geology; finite element analysis;
 pore pressure; pore water; mathematical models;
 sand; clastic sediments; clays; consolidation; statistical
 methods; deformation; porous media; dilatancy; strain;
 plane strain; computer programs
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)
- 919115 79-02287
Finite elements in geomechanics
 Gudehus, G. (EDITOR)
 Finite elements in geomechanics, Karlsruhe, Germany.
 Federal Republic of, Sept., 1975
 Publ: John Wiley & Sons
 251-291p., 1977
 28 REFS.
 Subfile: B
 Country of Publ.: United Kingdom
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus.; table
 Descriptors: *soil mechanics; *foundations; methods;
 finite element analysis; pore water; pore pressure; models;
 mathematical models; statistical methods; loading;
 structures
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)
- 919116 79-02006
Soil-structure interaction and simulation problems
 Desai, C. S.
 Finite elements in geomechanics
 Gudehus, G. (EDITOR)
 Finite elements in geomechanics, Karlsruhe, Germany.
 Federal Republic of, Sept., 1975
 Publ: John Wiley & Sons
 209-250p., 1977
 69 REFS.
 Subfile: B
 Country of Publ.: United Kingdom
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus.
 Descriptors: *soil mechanics; *foundations; methods;
 mathematical models; structures; models; finite element
 analysis; statistical methods; loading; settlement; piles;
 clays; stress; tensile stress; adhesion; cohesion; shear
 stress; strain; three-dimensional models; ground water;
 levels; excavations
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919109 79-02290
The predicted performance of soft clay under a trial
embankment loading based on the Cam-clay model
Wroth, C. P.

Finite elements in geomechanics
Gudehus, G. (EDITOR)
Finite elements in geomechanics.
Federal Republic of, Sept., 1975
Publ: John Wiley & Sons
191-208p., 1977
8 REFS.
Subfile: B
Country of Publ.: United Kingdom
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus., table
Latitude: N422500; Longitude: W0705500; W0711000
Descriptors: *soil mechanics; *Massachusetts; materials;
properties; engineering geology; clays; highways; Essex
County; models; strain; plane strain; Cam-clay models;
soft clay; materials; properties; embankments; settlement;
mathematical models; loading; prediction; United States;
finite element analysis; statistical methods; Sangus
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919108 79-02293
Some useful forms of isotropic yield surfaces for soil and
rock mechanics
Zienkiewicz, O. C.; Pande, G. N.

Finite elements in geomechanics
Gudehus, G. (EDITOR)
Finite elements in geomechanics.
Federal Republic of, Sept., 1975
Publ: John Wiley & Sons
179-190p., 1977
9 REFS.
Subfile: B
Country of Publ.: United Kingdom
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.
Descriptors: *soil mechanics; *rock mechanics; methods;
finite element analysis; isotropy; plasticity; stress;
strain; models; mathematical models; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

A unified approach to soil mechanics problems (including
plasticity and visco-plasticity)
Zienkiewicz, O. C.; Humpheson, C.; Lewis, R. W.

Finite elements in geomechanics
Gudehus, G. (EDITOR)
Finite elements in geomechanics.
Federal Republic of, Sept., 1975
Publ: John Wiley & Sons
151-177p., 1977
31 REFS.
Subfile: B
Country of Publ.: United Kingdom
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.
Descriptors: *soil mechanics; *rock mechanics; methods;
finite element analysis; loading; foundations; deformation;
strain; stress; elasticity; plasticity; viscoplasticity;
statistical methods; 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919104 79-02063
Some interactions of finite element methods and
geomechanics: a survey
Gudehus, G.

Finite elements in geomechanics
Gudehus, G. (EDITOR)
Finite elements in geomechanics.
Federal Republic of, Sept., 1975
Publ: John Wiley & Sons
1-31p., 1977
15 REFS.
Subfile: B
Country of Publ.: United Kingdom
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus., table
Descriptors: *soil mechanics; *soil mechanics; methods;
finite element analysis; statistical methods; mathematical
models; models; processes; elasticity; plasticity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

919103 79-01895

Finite elements in geomechanics

Gudehus, G (EDITOR)

Finite elements in geomechanics.

Federal Republic of, Sept. 1975

Publ John Wiley & Sons

573p. 1977

Subfile B

Country of Publ: United Kingdom

Doc Type BOOK: CONFERENCE PUBLICATION Bibliographic

Level MONOGRAPHIC

Language English

Note Individual papers are cited herein under the separate

authors; a Wiley Interscience Publication. illus.

Descriptors: rock mechanics; symposia; soil mechanics;

methods; engineering geology; finite element analysis;

statistical methods; mathematical methods

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

917978 79-01903

A multivariable-statistical approach to the evaluation of the undrained behaviour of clays

Indraraj, P

Univ. of Toronto, Toronto, Ont., CAN

unknown, 1977

Subfile B

Degree Level Doctoral

Country of Publ: Canada

Doc Type THESIS Bibliographic Level: MONOGRAPHIC

Language English

Availability Univ Microfilms

Latitude N420000; N570000 Longitude W0740000; W0950000

Descriptors: soil mechanics; materials; properties;

clays; materials; properties; statistical analysis;

multivariate analysis; deformation; loading; undrained

materials; Ontario; Canada; models; mathematical models;

shear strength; theoretical studies

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

915407 78-43606

Multivariate analysis techniques with application in mining

McWilliams, P. C.; Tesarik, D. R.

U. S. Bur. Mines, Spokane Min. Res. Cent., Spokane, Wash.

USA

U. S. Bur. Mines, Inf. Circ. 8782, 40p., 1978

CODEN XIMIAL 18 REFS.

Subfile B

Country of Publ: United States

Doc Type SERIAL Bibliographic Level: MONOGRAPHIC

Language English

illus., tables

Latitude N473000; N475000 Longitude W1163000; W1165000

Descriptors: Idaho; rock mechanics; mining geology;

automatic data processing; engineering geology; materials;

properties; evaluation; quantitative; mathematical methods;

Kootenai County; United States; Kellogg; Comu d'Alene;

Crescent Mine; metamorphic rocks; materials; properties;

multivariate analysis; techniques; statistical analysis;

cluster analysis; statistical methods; factor analysis

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

915351 78-44146

On the deformation properties of dry crust clay as a function of water content and degree of compression

Savchenko, V

Engineering geological properties of clays and processes in them; Moscow International symposium

Anonymous

Engineering geological properties of clays and processes in

them; Moscow International symposium. Moscow. Union of

Soviet Socialist Republics, Sept. 15-23, 1971

Int. Assoc. Eng. Geol., Bull. 5, 85 90p., 1972

CODEN BIEGR6 4 REFS.

Subfile B

Country of Publ: International

Doc Type SERIAL: CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Language English Summary Languages French

illus., table, sketch map

Latitude N594500; N700000 Longitude E0114500; E0190000

Descriptors: Finland; soil mechanics; engineering

geology; materials; properties; clays; Europe; moisture

content; compression; deformation; materials; properties;

statistical analysis

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

914182 78 44105

Design response spectra for moderate magnitude local earthquakes at rock and stiff-soil sites

Sadigh, K.; Houps, L.; Idriss, I. M.
Woodward-Clyde Consult., San Francisco, Calif., USA
The Geological Society of America, Cordilleran Section, 73rd annual meeting, Sacramento, Calif., United States, April 5-7, 1977

Geol. Soc. Am., Abstr. Programs 9: 4, 493p., 1977

CODEN: GAAPBC

Subfile B

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

Descriptors: earthquakes; seismology; geologic hazards; nuclear facilities; effects; design; ground motion; strong motion; seismic risk; magnitude; rock mechanics; soil mechanics; spectral analysis; elastic waves; statistical analysis; site exploration

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

914053 78 43872

Metod vybora vida zakona raspredeleniya pri statistichesko obrabotke fiziko-mekhanicheskikh svoystv gornykh porod
A method of selecting the distribution law mode during statistical analysis of physical-mechanical properties of rocks

Glushko, V. T.; Bohro, N. T.; Rubets, G. T.; Khizhnyak, N. V.

Razrab. Rudn. Mestorozhd. 16: Podzemnyye gornyye raboty, 36-43p., 1973

ISSN 0486-0705

Subfile B

Country of Publ.: Union of Soviet Socialist Republics

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Russian

Descriptors: engineering geology; materials; properties; statistical methods; materials, properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

913998 78-43548

Earth Resources Program: Development of a computer-aided procedure for the national program of inspection of dams

Anonymous

variously paginatedp., 1973

Subfile B

Doc Type: REPORT Bibliographic Level: MONOGRAPHIC

Languages: English

Report No.: USC-08449

Availability: NASA, L.B.J. Space Cent., Houston, Tex.,

United States

illus., tables, sketch maps
Descriptors: remote sensing; engineering geology; dams; automation data processing; applications; methods; site exploration; ERIS; multispectral analysis; discriminant analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

913957 78-43888

Diminution ratios for planning construction-area sediment controls

Guy, H. P.

U. S. Geol. Surv., Reston, Va., USA

National symposium on urban hydrology, hydraulics, and sediment control; proceedings

Barfield, B. J. (EDITOR); De Vore, R. W. (EDITOR)
National symposium on urban hydrology, hydraulics, and sediment control, Lexington, Kent., United States, July 27-29, 1976

Publ. Univ. Kent., Coll. Engineer., Off. Res. and Engineer. Serv.

91-97p., 1976

14 REFS.

Subfile B

Country of Publ.: United States

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus., sketch map

Latitude: N250000; N490000 Longitude: W0670000; W0980000

Descriptors: Eastern U.S.; sedimentation; soils; engineering geology; controls; erosion; site exploration; hydrogeology; planning; statistical methods; United States

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

911397 78 43696

Earthquakes, faults and nuclear power plants in southeastern New York - northern New Jersey

Annals, V. P.; Sykes, L. R.
 Lamont-Doherty Geol. Obs., Palisades, N.Y., USA
 American Geophysical Union, 1978 spring annual meeting,
 Miami Beach, Fla., United States, April 17-21, 1978
 EOS (Am. Geophys. Union, Trans.) 59: 4, 317p., 1978
 CIPFN FOSTAU

Subfile B
 Country of Pub: United States
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English
 Latitude: N400000 Longitude: W0733000; W0750000
 Descriptors: *New York; *New Jersey; *Atlantic Coastal Plain
 *Faults; *Seismology; *engineering geology; earthquakes;
 displacements; *geologic hazards; reverse faults;
 probability; United States; New York City region; nuclear
 facilities; epicenters; Ramapo fault; occurrence; North
 America; 1974-1977
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

911929 78 44117

A case study of the surface subsidence of the Polesine area

Schrefler, P. A.; Lewis, R. W.; Norris, V. A.
 Int. J. Numer. Anal. Methods Geomech. 1: 4, 377-386p.,
 1977

ISSN: 0363-9061 12 REFS.
 Subfile B

Country of Pub: International
 Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English
 Title: Table, sketch map
 Latitude: N450000 Longitude: E0130000; E000000
 Descriptors: *Italy; *soil mechanics; *engineering geology;
 failure; land subsidence; pumping; Europe; Polesine;
 reservoir; locks; pump tests; ground water; natural gas;
 settlement; wells; mathematical models; models; finite
 element analysis; statistical methods; Bosaro
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

911927 78-44217

Large strain analysis of some geomechanics problems by the finite element method

Camata, F.; Wirth, A. S.
 Int. J. Numer. Anal. Methods Geomech. 1: 3, 299-310p.,
 1977

ISSN: 0363-9061 32 REFS.
 Subfile B
 Country of Pub: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Language: English

Descriptors: *foundations; *soil mechanics; stability;
 finite element analysis; statistical methods; layered
 materials; homogeneous materials; mathematical models;
 models; finite strain; stress; strain; elastoplastic
 materials; loading
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

911925 78-43932

Analysis of ground surface settlement due to shallow shield tunnels

Kawamoto, T.; Okuzono, K.
 Okumura-gumi Co., Osaka, JPN
 Int. J. Numer. Anal. Methods Geomech. 1: 3, 271-281p.,
 1977

ISSN: 0363-9061 2 REFS.
 Subfile B

Country of Pub: International
 Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English
 Title: Tables, Sects
 Latitude: N344500 Longitude: E1370000; E1363000
 Descriptors: *Japan; *engineering geology; tunnels; land
 subsidence; Asia; Honshu; Nagoya; subways; alluvium;
 controls; construction; deformation; settlement; granular
 materials; finite element analysis; statistical methods;
 numerical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

911886 78-43811

Comparison of lithologic and structural controls on fracturing in carbonate rocks

Das Gupta, U.
Univ. Toronto, Dep. Geol., Toronto, Ont., CAN.
The Geological Association of Canada, The Mineralogical Association of Canada, The Geological Society of America (81st Annual Meeting), 1978 Joint Annual Meeting.
Geol. Soc. Am., Abstr. Programs 10: 7, 385p., 1978
CODEN: GJAPBC
Subfile: B

Country of Publ.: United States
Doc. Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Descriptors: Alberta; rock mechanics; Rocky Mountains; fractures; structural analysis; sedimentary rocks; engineering geology; structural geology; deformation; style; carbonate rocks; open fractures; properties; controls; structural controls; lithologic controls; reservoir properties; reservoir rocks; permeability; Turner Valley formation; Canada; North America; Northern Rocky Mountains; Moose Mountain Dome; diagenesis; multivariate analysis; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

909049 78-39227

Dynamic models of rock blasting

Sanfich, J. R.
Univ. of New South Wales, AUS.
unknown, 1977
Subfile: B

Degree Level: Doctoral
Country of Publ.: Australia
Doc. Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Descriptors: explosions; rock mechanics; theoretical studies; fractures; thermodynamics; snalling; elastic waves; propagation; experimental studies; models; mathematical models; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

909048 78-39233

Acoustic identification of marine sediments by stochastic methods

Torgal, H.
Univ. of New Hampshire, Durham, N.H., USA
1977
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc. Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Descriptors: soil mechanics; geophysical methods; materials; properties; acoustical methods; sediments; applications; materials; properties; engineering properties; marine environment; statistical methods; stochastic processes; automatic data processing
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

909047 78-39221

Grouping of marine sediments using a multivariate analysis of seismic profiles

Milligan, S. D.
Univ. of Rhode Island, Kingston, R.I., USA
71p., 1977
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc. Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Availability: Univ. Microfilms
Latitude: N412000; N415700 Longitude: W0710500; W0712500
Descriptors: Rhode Island; soil mechanics; sediments; geophysical methods; engineering geology; materials; properties; clastic sediments; seismic methods; distribution; applications; United States; Narragansett Bay; materials; properties; profiles; marine environment; statistical analysis; cluster analysis; statistical methods; reflection methods; classification; sand; silt; clay; engineering properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

909042 78-39219

Finite element analyses of deep excavation behavior in soft clay

Maha, A. I.
Stanford Univ., Stanford, Calif., USA
34p., 1978

Subfile B

Degree Level: Doctoral
Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Language: English

Availability: Univ. Microfilms
Descriptors: automatic data processing; soil mechanics; underground installations; engineering geology; excavations; materials; properties; clays; finite element analysis; statistical methods; deep excavations; depth; models; mathematical models; materials; properties; simulation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

908604 78-38263

Simple graphical methods for estimating the confidence region about the orientation of the intersection of two planes

Cruden, D. J.; Kelker, D.
Univ. Alberta, Dep. Geol., Edmonton, Alberta, CAN
Can. J. Earth Sci. 15: 10, 1598-1604p., 1978

CODEN: CJESAP 13 REFS.

Subfile B

Country of Publ.: Canada

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Language: English Summary Language: French

illus., table
Descriptors: mathematical geology; rock mechanics; structural geology; automatic data processing; methods; techniques; general; statistical methods; graphics; graphic display; planes; orientation; folds; faults; plotting; confidence region; intersections; structural analysis
Section Headings: 15 (MISCELLANEOUS & MATHEMATICAL GEOLOGY)

909077 78-39397

A general probabilistic analysis for three-dimensional wedge failures

Major, G. J.; Ross-Brown, D. J.; Kim, H.
Dames and Moore, Denver, Colo., USA
19th U. S. Symposium on rock mechanics, Stateline, Nev., United States, May 1-3, 1978

Symp. Rock Mech., Proc. 19, Vol. 2, 45-56p., 1978

CODEN: PSRMA6 15 REFS.

Subfile B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Language: English
illus.

Descriptors: rock mechanics; slope stability; failure; probability; Monte Carlo analysis; models; three-dimensional models; experimental studies; mines; wedges
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

909076 78-39401

Probabilistic analysis of the plane shear failure mode

Marek, J. M.; Savely, J. P.
Pincok, Allen and Holt, Tucson, Ariz., USA
19th U. S. Symposium on rock mechanics, Stateline, Nev., United States, May 1-3, 1978

Symp. Rock Mech., Proc. 19, Vol. 2, 40-44p., 1978

CODEN: PSRMA6 5 REFS.

Subfile B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Language: English
illus.

Descriptors: rock mechanics; slope stability; failure; shear strength; probability; Monte Carlo analysis; mathematical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

908053 78-39286

Creep and relaxation of oil shale

Ching, K. P.; Smith, J. W.; Khaliki, B.
Univ. Wyo., Dep. Civ. and Archit. Eng., Laramie, Wyo., USA;
Laramie Energy Res. Cent., USA
19th U. S. Symposium on rock mechanics, Stateline, Nev.,
United States, May, 1-3, 1978
Sym. Rock Mech., Proc. 19, Vol. 1, 414-418p., 1978
CODEN: PSRMA6 8 REFS.
Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: table
Descriptors: rock mechanics; failure; creep; Green
River Formation; oil shale; models; stress; composition;
organic materials; uniaxial tests; experimental studies;
statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

908016 78-39510

Finite element analysis of stages of excavation of Helms underground powerhouse

Willoughby, R. F.; Howland, H. J.
Pac. Gas and Electr. Co., San Francisco, Calif., USA
19th U. S. Symposium on rock mechanics, Stateline, Nev.,
United States, May, 1-3, 1978
Sym. Rock Mech., Proc. 19, Vol. 1, 159-164p., 1978
CODEN: PSRMA6 14 REFS.
Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: tables, sketch map
Latitude: N363000; Longitude: W1190000; W1194500
Descriptors: California; rock mechanics; engineering
geology; excavations; underground installations;
deformation; Fresno County; United States; Millerton Lake;
Courtright Lake; Lake Wishon; Helms Pumped Storage Project;
finite element analysis; statistical methods; elasticity;
strain; failure; stress; hydraulic fracturing
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

908005 78-39337

Determining seismic risk for economic optimum slope design

Glass, D. E.; Savely, J. P.; Call, R. D.
Univ. Ariz., Dep. Min. and Geol. Eng., Tucson, Ariz., USA;
Pincock, Allen & Holt, USA
19th U. S. Symposium on rock mechanics, Stateline, Nev.,

United States, May 1-3, 1978
Sym. Rock Mech., Proc. 19, Vol. 1, 89-94p., 1978
CODEN: PSRMA6 19 REFS.
Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: tables
Descriptors: mining geology; slope stability; rock
mechanics; earthquakes; evaluation; landslides;
excavations; effects; open-pit mining; design;
statistical analysis; seismic risk
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

908003 78-39338

A probabilistic model for shearing resistance of jointed rock

Glynn, E.; Einstein, H. H.; Veneziano, D.
Mass. Inst. Technol., Cambridge, Mass., USA
19th U. S. Symposium on rock mechanics, Stateline, Nev.,
United States, May 1-3, 1978
Sym. Rock Mech., Proc. 19, Vol. 1, 66-76p., 1978
CODEN: PSRMA6 9 REFS.
Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: table
Descriptors: rock mechanics; slope stability; fractures;
materials; properties; failure; style; stress; joints;
models; probability; fracture zones; materials; properties;
strength; shear strength; mathematical models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

908001 78-39306

A statistical theory of fragmentation

Dienes, D. K.
Los Alamos Sci. Lab., Los Alamos, N.M., USA
19th U. S. Symposium on rock mechanics, Stateline, Nev.,
United States, May 1-3, 1978
Symp. Rock Mech., Proc. 19, Vol. 1, 51-55p., 1978
CODEN: PSRMA6 5 REFS.

Subfile: B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English

illus.

Descriptors: rock mechanics; failure; fragmentation;

statistical analysis; theoretical studies

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

908000 78-39351

Analysis of discontinuity orientation for a probabilistic slope stability design

Herget, G.
Can. Cent. Miner. and Energy Technol., Elliot Lake Lab.,
Elliot Lake, Ont., CAN
19th U. S. Symposium on rock mechanics, Stateline, Nev.,
United States, May 1-3, 1978
Symp. Rock Mech., Proc. 19, Vol. 1, 42-50p., 1978
CODEN: PSRMA6 15 REFS.

Subfile: B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English

illus., table

Descriptors: slope stability; rock mechanics; failure;

design; site exploration; stabilization; statistical

analysis; methods; mathematical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

907998 78-39470

Statistical analysis of laboratory compressive strength and Young's modulus data for the design of production pillars in coal mines

Sorenson, W. K.; Pariseau, W. G.
Cont. Oil Co., Poncha City, Okla., USA; Univ. Utah, USA
19th U. S. Symposium on rock mechanics, Stateline, Nev.,
United States, May 1-3, 1978
Symp. Rock Mech., Proc. 19, Vol. 1, 30-37p., 1978
CODEN: PSRMA6 10 REFS.

Subfile: B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English

Descriptors: rock mechanics; mining geology; materials;
properties; production control; Young's modulus; pillars;
compression; elastic constants; strength; materials;
properties; statistical analysis; engineering geology; coal
; organic residues; experimental studies; evaluation
; Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

907997 78-39272

Geomathematical investigation of fault populations at selected locations

Brooke, J. P.
San Jose State Univ., Geol. Dep., San Jose, Calif., USA
19th U. S. Symposium on rock mechanics, Stateline, Nev.,
United States, May 1-3, 1978
Symp. Rock Mech., Proc. 19, Vol. 1, 23-29p., 1978
CODEN: PSRMA6

Subfile: B

Country of Publ.: Varies

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English

tables

Descriptors: faults; rock mechanics; distribution;

failure; patterns; hydraulic fracturing; models;

mathematical models; statistical analysis; fracture zones;

experimental studies; fault zones

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905579 78-39451

Osnovnye napravleniya issledovaniya ostatochnykh seysmofarmatsiy s tsel'yu razrabotki metodiki ikh prognozirovaniya na uchastkakh gidrotekhnicheskogo stroitel'stva

Main directions in investigations of remanent seismic deformations: development of methods of seismic prediction for areas of hydrotechnical structures

Savich, A. I.; Pavlova, I. N.; Gertsik, V. M.; Koptev, V. I.; Yashchenko, Z. G.

Sovremennye seysmodislotsii i ikh znachenie dlya seysmicheskogo mikroyonirovaniya

Gorshkov, G. P. (EDITOR)
Vsesoyuznyye soveshchaniye Sovremennyye seysmodislotsii i ikh znachenie dlya seysmicheskogo mikroyonirovaniya, Moscow, Union of Soviet Socialist Republics, Jan. 25-27, 1972

Publ. Izd. Mosk. Univ.
141-152p., 1977

Subfile: B

Country of Publ.: Union of Soviet Socialist Republics
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: Russian
illus., table, sketch map
Descriptors: dams; rock mechanics; seismology; design; deformation; seismicity; damage; stress; seismotectonics; global; 1906-1967; rock masses; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905943 78-35856

Analisis del ensayo "limite liquido"
Analysis of the liquid limit test

Pestl, A.

Venez., Univ. Cent., Inst. Mater. Modelos Estructurales, Bol. Tec. 8, 29-30, 71-101p., 1970
9 REFS.

Subfile: B

Country of Publ.: Venezuela

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Spanish Summary Languages: English

illus., tables

Descriptors: soil mechanics; techniques; liquid limit; testing; statistical analysis; Atterberg limits;
applications; interpretation

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905727 78-33425

Stochastic time-series analysis of volcanic events in central Luzon, Philippines

Gupta, I. N.

Ebasco Serv., Inc., Greensboro, N.C., USA

American Geophysical Union, 1977 spring annual meeting.

Washington, D.C., United States, May 30-June 3, 1977

Eos (Am. Geophys. Union, Trans.) 58, 6, 540p., 1977

CODEN: EOSTAJ

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

Latitude: N141500; N145500 Longitude: E1210000; E1201500

Descriptors: Philippines Islands; volcanology;

engineering geology; volcanoes; nuclear facilities; Asia;

Luzon; Bataan; site exploration; feasibility studies;

geologic hazards; eruptions; time series; stochastic

processes; rates; statistical analysis; seismicity;

seismic risk; aseismic design

Section Headings: 05 (PETROLOGY, IGNEOUS AND METAMORPHIC)

905621 78-35844

A new approach for estimating earthquake risk

Omote, S.; Matsumura, K.

Fifth European conference on earthquake engineering.

Istanbul, United States, Sept. 22-25, 1975

Eur. Symp. Earthquake Eng., Proc. 5, Vol. 3, 13 p.p., 1975

CODEN: 322RAT 13 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English

illus., sketch maps

Latitude: N300000; N450000 Longitude: E1470000; E1290000

Descriptors: Japan; engineering geology; earthquakes;

Asia; seismic risk; probability; methods; acceleration;

1985-1974

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905620 78-35704

Balanced seismic coefficients for sites with different seismicity

Grandori, G.
Fifth European conference on earthquake engineering, Istanbul, United States, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 3, 10 p.p., 1975

CODEN 322RAT 6 REFS.

Subfile B

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: tables

Latitude: N363000; N473000 Longitude: E0190000; E063000
Descriptors: Italy; engineering geology; earthquakes; Europe; seismicity; probability; intensity; planning; economics; models; 1400 1972
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905619 78-35756

Seismic zoning of the Balkan region

Karnick, V.
Fifth European conference on earthquake engineering, Istanbul, United States, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 3, 12 p.p., 1975

CODEN 322RAT 9 REFS.

Subfile B

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: sketch map

Latitude: N360000; N460000 Longitude: E0300000; E040000
Descriptors: Balkan Peninsula; engineering geology; earthquakes; Europe; seismic risk; acceleration; ground motion; velocity; probability; epicenters; intensity; mechanism; Karnick, V.
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905618 78-35613

Trends in engineering seismology in Europe

Ambraseys, N. N.
Fifth European conference on earthquake engineering, Istanbul, United States, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 3, 14 p.p., 1975

CODEN 322RAT 18 REFS

Subfile B

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: tables

Latitude: N350000; N710000 Longitude: E0750000; W0250000
Descriptors: Europe; engineering geology; earthquakes; seismic risk; probability; planning; ground motion; structures; building codes; epicenters; accelerometers; magnitude; intensity; focus; strong motion; aseismic design; attenuation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905617 78-35715

A seismic risk study of Izmir

Gulkan, P.; Yuceman, M. S.
Fifth European conference on earthquake engineering, Istanbul, Turkey, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 2, 11 p.p., 1975

CODEN 322RAT 7 REFS.

Subfile B

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.: table, sketch map

Latitude: N382000; N384000 Longitude: E0272000; E0270000
Descriptors: Turkey; engineering geology; earthquakes; Middle East; seismic risk; Bayesian analysis; probability; intensity; Izmir; ground motion; response; attenuation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905616 78-35708

Migration of destructive earthquakes in Middle America and associated risk of occurrence

Grases, J. G.
Fifth European conference on earthquake engineering,
Istanbul, Turkey, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 2, 5 p.p.,
1975
CODEN: 32ZRAT 4 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: sketch maps
Descriptors: *Central America; engineering geology;
earthquakes; distribution; patterns; migration; seismic
risk; 1700-1973; seismicity; probability
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905614 78-35610

Probability distribution of earthquake accelerations for sites in western Germany

Albrner, L.; Rosenhauer, W.
Fifth European conference on earthquake engineering,
Istanbul, Turkey, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 2, 7 p.p.,
1975
CODEN: 32ZRAT 4 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: tables, sketch maps
Latitude: N490000; Longitude: E0100000; EQ040000
Descriptors: *West Germany; engineering geology;
earthquakes; Germany; Europe; effects; acceleration;
probability; seismic risk; 1750-1969; seismicity; computer
programs; buildings; urban planning; Rhine Basin
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905613 78-35900

Seismic risk analysis: California State Water Project

Shah, H. C.; Movassate, M.
Stanford Univ., Stanford, Calif., USA
Fifth European conference on earthquake engineering,
Istanbul, Turkey, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 2, 14 p.p.,
1975
CODEN: 32ZRAT

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: sketch maps
Latitude: N323000; Longitude: W1141500; W1243000
Descriptors: *California; engineering geology;
earthquakes; United States; seismic risk; California State
Water Project; probability; acceleration; water resources
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905575 78-35669

Finite element grids for dynamic response analysis

Dezfulian, H.
Fifth European conference on earthquake engineering,
Istanbul, Turkey, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 1, 5 p.p.,
1975
CODEN: 32ZRAT 3 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.:
Descriptors: *soil mechanics; materials; properties;
dynamic properties; materials, properties; response; finite
element analysis; statistical methods; acceleration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905574 78-35787

An application of finite element method to soil-foundation interaction analysis

Kurthyash, E.; Iida, Y.
Fifth European conference on earthquake engineering, Istanbul, Turkey, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 1, 5 p.p., 1975

CODEN: 32ZRAT 1 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.

Latitude: N395700; N341000 Longitude: E1310000; E1304500
Descriptors: *Japan; *soil mechanics; engineering geology; materials; properties; foundations; elastic moduli; Asia; Honshu; Kyushu; Shimoroseki; Woji; bridges; piers; dynamics; amplitude; finite element analysis; statistical methods; S-waves; velocity; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905572 78-35611

Earthquake analysis of Keban Dam

Akay, H. U.; Gulkan, P.
Fifth European conference on earthquake engineering, Istanbul, Turkey, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 1, 12 p.p., 1975

CODEN: 32ZRAT 10 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.

Latitude: N360000; N390000 Longitude: E0420000; E0370000
Descriptors: *Turkey; engineering geology; dams; earthquakes; Middle East; southeast; Euphrates River; Keban Dam; Keban; effects; rockfill dams; finite element analysis; statistical methods; seismic risk; response; simulation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905560 78-35834

Earthquake response of continuous media using dynamic relaxation

Numovski, N.; Petrovski, D.
Fifth European conference on earthquake engineering, Istanbul, Turkey, Sept. 22-25, 1975

1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 1, 5 p.p., 1975

CODEN: 32ZRAT 3 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.

Descriptors: *earthquakes; *soil mechanics; effects; materials; properties; response; dynamic properties; mathematical methods; numerical analysis; finite element analysis; statistical methods; continuous media; two-dimensional models; isotropic materials; homogeneous media; isotropic materials; strain; elastoviscous materials; viscosity; shear modulus; elastic constants; displacements; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905559 78-35723

Behaviors of the alluvial layers on the sloped bed rock during earthquakes

Hamada, M.; Fujita, H.
Taisei Corp., JPN
Fifth European conference on earthquake engineering, Istanbul, Turkey, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 1, 5 p.p., 1975

CODEN: 32ZRAT 2 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., sect.

Latitude: N344500; N351500 Longitude: E1360000; E1353000
Descriptors: *Japan; *soil mechanics; engineering geology; materials; properties; earthquakes; alluvium; effects; clastic sediments; materials; properties; inclined materials; acceleration; numerical analysis; Asia; Osaka; Honshu; displacements; mathematical models; models; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905553 78-35840

Empirical liquefaction index for sands

Nimally, S. W.; Krizek, R. J.; Edil, T. B.
Univ. Fa., Dep. Civ. Eng., Gainesville, Fla. USA;
Northwestern Univ., USA
Fifth European conference on earthquake engineering,
Istanbul, Turkey, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 1, 14 p.p.,
1975
CODEN: 32ZRA1 15 REFS.

Subfile B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: tables, sects.
Descriptors: soil mechanics; materials; properties;
sand; materials; properties; clastic sediments;
liquefaction; statistical analysis; saturated materials;
cohesionless materials; fine-grained materials; loading;
grain size; acceleration; pore pressure
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905550 78-35831

Effect of groundwater and relief on seismicity of soils

Napetvaridze, S. G.; Jabauri, G. G.; Gogelia, I. I.
Fifth European conference on earthquake engineering,
Istanbul, Turkey, Sept. 22-25, 1975
Eur. Symp. Earthquake Eng., Proc. 5, Vol. 1, 8 p.p.,
1975
CODEN: 32ZRA1

Subfile B
Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: sects.
Descriptors: soil mechanics; earthquakes; ground water;
materials; properties; effects; movement; saturated
materials; seismicity; materials; properties; intensity;
building codes; water table; depth; wave fronts; elastic
waves; reflection; acceleration; dynamic properties;
finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

905270 78-34555

Finite element analysis of the temperature distribution within a Griggs apparatus sample assembly

Nelson, D.
Brown Univ., Dep. Geol. Sci., Providence, R.I., USA
American Geophysical Union, 1977 spring annual meeting.

Washington, D.C., United States, May 30-June 3, 1977
Eos (Am. Geophys. Union, Trans.) 58: 6, 513p., 1977
CODEN: EOSTAJ
Subfile B
Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Descriptors: geophysics; instruments; Griggs apparatus;
deformation; rock mechanics; experimental studies; P-T
conditions; temperature; high temperature; finite element
analysis; statistical methods
Section Headings: 17 (GEOPHYSICS, GENERAL)

905022 78-35907

Statistical estimates of the likelihood of earthquake shaking throughout New Zealand

Smith, W. D.
N. Z. Soc. Earthquake Eng., Bull. 9: 4, 213-221p., 1976
CODEN: NZEBA3 7 REFS.

Subfile B
Country of Publ.: New Zealand
Doc Type: SERIAL: Bibliographic Level: ANALYTIC
Languages: English
illus.: table, sketch maps
Latitude: S473000; S343000 Longitude: E1783000; E1663000
Descriptors: New Zealand; engineering geology;
earthquakes; Australasia; statistical analysis; intensity;
isoseismals; modified Mercalli scale; attenuation; seismic
risk
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

904283 78-35993

Retreat of cliff coastline in the Kilkeel area of County

Down

McGreal, W. S.
The Queen's Univ. of Belfast, Belfast, GBR
490p., 1977
Subfile B
Degree Level: Doctoral
Country of Publ.: United Kingdom
Doc Type: THESIS
Languages: English
Availability: Univ. Microfilms
Latitude N540500; Longitude W0053000; W0061500
Descriptors: *Northern Ireland; *geomorphology
Engineering geology; shore features; shorelines; cliffs;
Europe; Down; Kilkeel; erosion; conservation; processes;
1973-1975; environmental geology; sediments; engineering
properties; statistical analysis
Section Headings: 23 (SURFICIAL GEOLOGY, GEOMORPHOLOGY)

904035 78-35746

A quantitative model of dilatancy in dry rock and its application to Westerly Granite

Holcomb, D. J.
Univ. Colo./NOAA, Coop. Inst. Res. Environ. Sci., Boulder,
Colo., USA
American Geophysical Union; 1977 spring annual meeting.
Washington, D.C.; United States, May 30-June 3, 1977
Eos (Am. Geophys. Union, Trans.) 58: 6, Supp., 1977
CODEN: EOSTAU

Subfile B
Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION
Level: ANALYTIC
Languages: English
Descriptors: *rock mechanics; materials; properties;
granite; Westerly Granite; dilatancy; granite; granodiorite
family; stress; statistical analysis; quantitative analysis
fractures; cracks; strain; dry rocks; materials;
properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

903657 78-35938

Modeling crack distributions in low porosity rocks

Timman, M.; Warren, N.
Univ. Calif., Inst. Geophys. and Planet. Phys., Los Angeles,
Calif., USA
American Geophysical Union; 1977 fall annual meeting. San
Francisco, Calif.; United States, Dec. 5-9, 1977
Eos (Am. Geophys. Union, Trans.) 58: 12, 1223p., 1977
CODEN: EOSTAU

Subfile B
Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION
Level: ANALYTIC
Languages: English
Descriptors: *fractures; structural analysis; deformation;
rock mechanics; distribution; theoretical studies;
compressibility; cracks; open fractures; porosity; models;
mathematical models; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

903393 78-34320
Va. Polytech. Inst., Dep. of Stat., USA

Probability and statistics for engineers and scientists
Walpole, R. E.; Myers, R. H.
Roanoke Coll., Dep. of Math. and Stat., Roanoke, Va., USA
Publ. Macmillan Publ. Co.
580p., 1978
ISBN: 0024241105 Ed. 2
Subfile B
Country of Publ.: United States
Doc Type: BOOK
Bibliographic Level: MONOGRAPHIC
Languages: English
Note: First edition 1972, illus., tables
Descriptors: *mathematical geology; textbooks;
statistical methods; probability; applications; engineering
geology
Section Headings: 15 (MISCELLANEOUS & MATHEMATICAL GEOLOGY)

901264 78 35576

Ein stochastisches Modell fuer die Beschreibung des Durchbruchverhaltens eines Festbettsystems mit Stoffaustausch
A stochastic model for the description of the breakdown of a packet bed system by material exchange

Sedlacek, M.
Eidgenoessisch. Tech. Hochschule Zuerich, Zuerich, CHE
88p. 1975
62 REFS

Subfile: B
Degree Level: Doctoral
Country of Publ.: Switzerland
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: German
Availability: Univ. Microfilms
illus.: tables

Descriptors: *automatic data processing; *engineering geology; methods; materials; properties; stochastic models; packet bed systems; statistical analysis; stochastic processes; solution; experimental studies; Monte Carlo analysis; theoretical studies; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

902190 78 35727

Virtual mass of coarse granular media

Manoussis, A. A.; McCorquodale, J. A.
Am. Soc. Civ. Eng., Proc., J. Waterw., Port., Coastal Ocean Div., 104 WW2, 191-200p., 1978
CODEN: JWRFAU 28 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables

Descriptors: *rock mechanics; *shorelines; materials; properties; hydraulics; sediments; experimental studies; materials; properties; virtual mass; breakwaters; statistical analysis; gravel; clastic sediments; crushed rock; stabilization
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

901265 78 31439

Pit slope manual supplement 4-1; Computer manual for seepage analysis

Marion Lambert, J.
Can. Cent. Miner. Energy Technol., CANMET Rep. 77-30, 97 p., 1977

CODEN: CANRD7
Subfile: B
Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

Languages: English
illus.

Descriptors: *automatic data processing; *slope stability; *ground water; *mining geology; engineering geology; excavations; movement; methods; computer programs; seepage; FEPPM; analysis; flow; rates; porous materials; permeability; finite element analysis; statistical methods; open-pit mining; application

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

901221 78-31752

Zur Geologie und Statistik des Tunnelbaus in Baden-Wuerttemberg unter besonderer Beruecksichtigung der Keupertunnel

The geology and statistics of tunnel structure in Baden-Wuerttemberg with particular emphasis on the Keuper Tunnel
Krause, H.
Baden-Wuertemb., Geol. Landesamt, Jahresh. 19, 35-57p., 1977

CODEN: JGIBAV 37 REFS.
Subfile: B

Country of Publ.: Germany, Federal Republic of
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: German Summary Languages: French
illus.: table, sect.

Latitude: N473000; N494500 Longitude: E0102000; E0073000
Descriptors: *West Germany; engineering geology; tunnels; Germany; Europe; Baden-Wuerttemberg; claystone; clastic rocks; Triassic; Mesozoic; Keuper; Upper Triassic; stability; rock mechanics; ground water; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

DIALOG FILE#89: GEOREF - 61-82/Sep (Copr. American Geological Institute) Item 819 of 1356 User 5208 2sep82 2025

901191 78-31821
Impact of a low permeable grain on shore-zone geometry
 Dine, A. R.
 Univ. Calif., Dep. Geogr., Los Angeles, Calif., USA

Research techniques in coastal environments

Walker, H. J. (EDITOR)
 Geosci. Man 18, 81-95p., 1977
 CODEN: GSCMA2
 Subfile: B

Country of Publ.: United States
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus., tables, Geol. sketch maps
 Latitude: N341000 Longitude: W1191000
 Descriptors: *California; engineering geology;
 shorelines; Ventura County; United States; breakwaters;
 Point Mugu; effects; sedimentation; factor analysis;
 statistical methods; slopes; beaches; spectral analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

900807 78-31460
Investigation of the bearing capacity of fill
 Richards, B. G.
 Aust., CSIRO, Div. Appl. Geomech., Tech. Rep. 29, 44p., 1976
 CODEN: AAGROH 4 REFS.
 Subfile: B

Country of Publ.: Australia
 Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
 Languages: English
 illus., tables
 Descriptors: soil mechanics; materials; properties;
 bearing capacity; materials; properties; fill; stress;
 models; mathematical models; experimental studies; triaxial
 tests; finite element analysis; statistical methods;
 permeability; New South Wales; Australia; Cobar
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

898652 78-31651
Decision analysis applied to rock tunnel exploration
 Feinstein, H. H.; Labrecque, D. A.; Markow, M. J.; Bancher, G.

Near surface underground opening design
 Judd, W. R. (EDITOR)
 Site characterization: 17th U. S. symposium on rock
 mechanics, Snowbird, Utah, United States, Aug. 25-27, 1976
 Eng. Geol. 12 2, 143-161p., 1978
 CODEN: EGGNAD 4 REFS
 Subfile: B

Country of Publ.: International
 Doc Type: SERIAL CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus., tables
 Descriptors: tunnels; engineering geology; site
 exploration; statistical methods; decision methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

898431 78-31959
**Probability analysis of rock slopes and its application to a
 pit slope design**
 Young, D. S.
 Kennecott Copper Corp., Salt Lake City, Utah, USA

**Energy resources and excavation technology: proceedings,
 18th U. S. symposium on rock mechanics**
 Wang, F. D. (EDITOR); Clark, G. B. (EDITOR)
 Energy resources and excavation technology: 18th U. S.
 symposium on rock mechanics, Keystone, Colo., United States,
 June 22-24, 1977
 Publ. Colo. Sch. Mines Press
 5C5.1-5C5.6p., 1977
 5 REFS.

Subfile: B
 Country of Publ.: United States
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus., tables
 Descriptors: slope stability; failure; site exploration;
 methods; statistical analysis; probability; excavations;
 design
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

898427 78-31574

Statistical description of rock properties and sampling

Raebler, G. B.; Einstein, H. H.; Lanney, N. A.
Mass. Inst. Technol., Cambridge, Mass., USA

Energy resources and excavation technology; proceedings.

18th U. S. symposium on rock mechanics

Wang, F. D. (EDITOR); Clark, G. B. (EDITOR)

Energy resources and excavation technology; 18th U. S.
symposium on rock mechanics, Keystone, Colo., United States.

June 22-24, 1977

Publ. Colo. Sch. Mines Press

5C1.1 5C1.8p. 1977

15 REFS.

Subfile B

Country of Publ.: United States

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus., tables

Descriptors: rock mechanics; materials; properties;

joints; materials; properties; models; statistical analysis

; fractures; mathematical models

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

898410 78-31923

Site specific studies for possible ongoing salt dome

movement

Thoms, R. L.; Gehle, R. M.; Manning, T. A.; Paille, L. K.

La. State Univ., Baton Rouge, La., USA

Energy resources and excavation technology; proceedings.

18th U. S. symposium on rock mechanics

Wang, F. D. (EDITOR); Clark, G. B. (EDITOR)

Energy resources and excavation technology; 18th U. S.
symposium on rock mechanics, Keystone, Colo., United States.

June 22-24, 1977

Publ. Colo. Sch. Mines Press

4B6.1 4B6.1p. 1977

55 REFS.

Subfile D

Country of Publ.: United States

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus.

Latitude: N250000; Longitude: W0790000; W0980000

Descriptors: Gulf Coastal Plain; engineering geology;

structural geology; waste disposal; salt tectonics; North

America; radioactive waste; site exploration; salt domes;

storage; instruments; finite element analysis; statistical

methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

898408 78-31783

Stability of a radioactive waste repository in the Canadian

Shield

Mahtab, M. S.; McCreath, D. R.; Ratigan, J. L.

Acres Consult. Serv., Niagara Falls, CAN; RE/SPEC, USA

Energy resources and excavation technology; proceedings.

18th U. S. symposium on rock mechanics

Wang, F. D. (EDITOR); Clark, G. B. (EDITOR)

Energy resources and excavation technology; 18th U. S.
symposium on rock mechanics, Keystone, Colo., United States.

June 22-24, 1977

Publ. Colo. Sch. Mines Press

4B4.1 4B4.6p. 1977

12 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic

Level: ANALYTIC

Languages: English

illus., tables

Latitude: N480000; N570000 Longitude: W070000; W1200000

Descriptors: Canadian Shield; engineering geology;

underground installations; Canada; North America; stability

; failure; storage; waste disposal; radioactive waste;

finite element analysis; statistical methods; loading;

stress

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

898357 78-31776

Probability of specified ground vibrations from blasting

Lutton, R. J.
USAE Waterways Exp. Stn., Vicksburg, Miss., USA

Energy resources and excavation technology; proceedings.

18th U. S. symposium on rock mechanics
Wang, F. D. (EDITOR); Clark, G. B. (EDITOR)

Energy resources and excavation technology; 18th U. S. symposium on rock mechanics, Keystone, Colo., United States, June 22-24, 1977

Publ. Colo. Sch. Mines Press
362 1-362 7p. 1977
7 REFS.

Subfile B

Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus.: tables, sect

Descriptors: explosions; effects; ground motion; construction; elastic waves; velocity; vibration

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

898315 78-31562

Probability distribution of earthquake accelerations with applications to sites in the northern Rhine area, Central Europe

Anhorn, L.; Rosenhauer, W.
J. Geophys., 41: 6, 581-594p., 1975

CONF. JCEND4 16 REFS.

Subfile B

Country of Publ.: Germany, Federal Republic of
Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English
illus.: table, sketch map

Latitude: N49°00'00"; N52°00'00" Longitude: E01°00'00"; E04°00'00"

Descriptors: West Germany; seismology; engineering geology; seismicity; earthquakes; Germany; Europe; North Rhine Westphalia; seismic risk; site exploration; Belgium; Lower Rhine Graben; acceleration; nuclear facilities; Inesse; Rhineland Palatinate; statistical analysis; magnitude; epicenters

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

898165 78-31843

Slope stability analysis and design based on probability techniques at Cassiar Mine

Pitman, D. R.; Martin, D. C.
D. R. Pitman and Assoc. Ltd., West Vancouver, B.C., USA

(Can. Inst. Min. Met., Trans., 80, 51-62p., 1977

CODEN: TCIMAT 5 REFS.
Subfile B

Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English
illus.: tables, sects

Latitude: N55°00'00"; N61°20'00" Longitude: W126°00'00"; W132°00'00"

Descriptors: mining geology; slope stability; British Columbia; practice; site exploration; engineering geology

; open-pit mining; Cassiar Mine; Sylvester Group; ground water; rock mechanics; design; Canada

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

898076 78-32246

Automatic identification of soil parent materials using quantitative terrain factors

Khoury, M. A.
Univ. of Illinois, Urbana, Ill., USA

330p., 1977

Subfile B

Degree Level: Doctoral
Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English

Availability: Univ. Microfilms

Descriptors: automatic data processing; soils; engineering geology; maps; genesis; cartography; parent materials; identification; quantitative analysis; classification; statistical analysis; till; clastic sediments; loess; limestone; carbonate rocks; mapping; field studies

Section Headings: 25 (SURFICIAL GEOLOGY, SOILS)

897853 78-27887

Statistical interpretation of shock series in mining

Murcak, H.
Rock Mech. (Vienna) 10 4, 181-186p., 1978

CODEN: RMFMAS 4 REFS

Subfile B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English Summary Languages: German
illus.

Descriptors: mining geology; seismology; rock mechanics; methods; microseisms; statistical methods; interpretation

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

896867 78-27581

Methodische Probleme bei der Ermittlung strukturgeologischer
Primärdaten im Fels und ihrer Weiterverarbeitung zu
statistischen Kenngrößen des Gesteinsverbandes
Methodical problems of determining structural-geological
primary data in rock and their further processing into
statistical characteristics of rock associations

Richter, H. C.; Molek, H.; Reuter, F.
Z. Angew. Geol. 22 5, 238-243p., 1976
CODEN ZANGAK 4 REFS

Subfile: B
Country of Publ.: German Democratic Republic
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: German Summary Languages: Russian

Descriptors: *rock mechanics; *structural geology;
*petrology; *methods; *statistical methods; Classification
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

896528 78-27621

Earth anchors: load transfer analysis using photoelastic,
analytic and finite element methods

Prieto Fortar, L. A.
Princeton Univ., Princeton, N. J., USA
37p., 1978

Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English

Descriptors: *soil mechanics; *techniques; *anchors;
experimental studies; theoretical studies; loading; finite
element analysis; statistical methods; methods; earth
anchors; photoelastic models; elasticity; models
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

896513 78-27009

Numerical models of crustal deformation

Kosloff, D.
California Inst. of Technol., Pasadena, Calif., USA
226p., 1978

Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English

Availability: Univ. Microfilms
Latitude N37N00; N39N000 Longitude W117W000; W122W000
Descriptors: *California; tectonophysics; engineering
geology; crust; land subsidence; Los Angeles County;

United States; Southern California; San Andreas Fault;
Transverse Ranges; Long Beach; Wilmington Field; plate
tectonics; mechanism; stress; numerical analysis; finite
element analysis; statistical methods; theoretical studies;
mathematical models; models; lithosphere; rheology;
elasticity; plasticity; island arcs; sonmounts; oil and
gas fields; Palmdale Bulge; uplifts
Section Headings 18 (GEOPHYSICS, SOLID EARTH)

896510 78-27609

Finite element analysis of seismic scattering problems

Day, S. M.
Univ. of California, San Diego, La Jolla, Calif., USA
165p., 1977

Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English

Availability: Univ. Microfilms
Descriptors: *seismology; *foundations; *geophysical methods;
*elastic waves; theoretical studies; seismic methods;
propagation; response; interpretation; scattering; finite
element analysis; statistical methods; numerical analysis;
geometry; engineering geology; Fourier analysis
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

896357 78-27977

Die Varianzanalyse und ihre Anwendung fuer geologische Zwecke
Variance analysis and its application for geological purposes
 Rasemann, W.

Mathematische Probleme der Geologie

Rasemann, W.
 Freiberg. Forschungh., Reihe C 286, 73-100p., 1975
 CODEN: FRCAD 54 REFS.

Subfile: B

Country of Publ.: German Democratic Republic
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: German Summary Languages: English
 tables

Latitude: N503000; N510000 Longitude: E0112000; E0101000
 Descriptors: *East Germany; *engineering geology; petroleum engineering; reservoir rocks; mathematical geology; variance analysis; statistical methods; Bunter; Lower Triassic; Thuringian Basin; Germany; Europe
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

896356 78-27976

Anwendung mathematisch-statistischer Modelle fuer geologische Zwecke am Beispiel der physikalischen Bewertung von Speichergesteinen
Application of mathematical-statistical models for geological purposes: example of the physical evaluation of reservoir rocks
 Rasemann, W.

Mathematische Probleme der Geologie

Rasemann, W.
 Freiberg. Forschungh., Reihe C 286, 5-71p., 1975
 CODEN: FRCAD 115 REFS.

Subfile: B

Country of Publ.: German Democratic Republic
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: German Summary Languages: English
 illus.; plates, tables

Latitude: N503000; N510000 Longitude: E0112000; E0101000
 Descriptors: *engineering geology; *East Germany; petroleum engineering; reservoir rocks; mathematical models; models; statistical methods; Bunter; Lower Triassic; Thuringian Basin; Germany; Europe; porosity; permeability
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

896355 78-27596

Mathematische Probleme der Geologie
Mathematical problems in geology

Rasemann, W.
 Freiberg. Forschungh., Reihe C 286, 100p., 1975
 CODEN: FRCAD 169 REFS.

Subfile: B

Country of Publ.: German Democratic Republic
 Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
 Languages: German Summary Languages: English

Note: Includes separate articles by Rasemann which are cited herein, illus., plates, tables

Latitude: N503000; N510000 Longitude: E0112000; E0101000
 Descriptors: *engineering geology; *East Germany; petroleum engineering; reservoir rocks; mathematical models; models; statistical methods; Bunter; Lower Triassic; Thuringian Basin; Germany; Europe; porosity; permeability; variance analysis; mathematical geology
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

895769 78-27856

Statistical forecasting of compressibility of peaty ground

Kogure, K.; Ohira, Y.
 Can. Geotech. J. 14: 4, 562-570p., 1977
 CODEN: CGJDAH 11 REFS.

Subfile: B

Country of Publ.: Canada

Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English Summary Languages: French
 illus.; tables

Descriptors: *foundations; *soil mechanics; materials; properties; peat; settlement; compression; statistical methods; consolidation; organic sediments; materials; properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894786 78 28043
Stresses and strains in non-linear viscous soils
 Sukijo, L
 Int. J. Numer. Anal. Methods Geomech. 2, 2, 129-158p., 1978.
 ISSN 0303-9061 8 REFS.
 Subfile B
 Country of Publ.: International
 Doc Type SERIAL Bibliographic Level ANALYTIC
 Languages English
 illus.
 Descriptors: soil mechanics; materials; properties; viscous materials; elasticity; plasticity; stress; strain; elastoplastic materials; non-linear materials; computer programs; creep; finite element analysis; statistical methods; loading; numerical analysis; consolidation; triaxial tests; clays; displacements; materials, properties
 Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)
 7 REFS.
 Subfile B
 Country of Publ.: International
 Doc Type SERIAL: CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
 Languages English
 Note: With discussion. illus., sect.
 Descriptors: nuclear facilities; earthquakes; effects; response; site exploration; foundations; bedrock; soil mechanics; S-waves; velocity; dynamic properties; mathematical models; finite element analysis; statistical methods
 Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894714 78-28018
A stochastic method for seismic stability evaluation of earth structures with strain dependent properties
 Singh, M. P.; Agrawal, P. K.
 Sargent & Lundy, Chicago, Ill., USA
 Sixth world conference on earthquake engineering. New Delhi, India, Jan. 10-14, 1977
 World Conf. Earthquake Eng., Proc. 6, 2363-2368p., 1977
 6 REFS.
 Subfile B
 Country of Publ.: International
 Doc Type SERIAL: CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
 Languages English
 Descriptors: foundations; soil mechanics; structures; materials; properties; stability; dynamic properties; stochastic methods; strain; damping; shear modulus; elastic constants; response; loading; accelerograms; finite element analysis; statistical methods; numerical analysis; examples; earthdams; materials, properties
 Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894747 78 28066
Statistical analysis of the computed response of structural response recorders (SRR) for accelerograms recorded in the United States of America
 Trifunac, M. D
 Univ. South. Calif., Dep. Civ. Eng., Los Angeles, Calif., USA
 Sixth world conference on earthquake engineering. New Delhi, India, Jan. 10-14, 1977
 World Conf. Earthquake Eng., Proc. 6, 2956-2961p., 1977
 2 REFS.
 Subfile B
 Country of Publ.: International
 Doc Type SERIAL: CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
 Languages English
 illus.; tables
 Latitude: N270000 Longitude: W1000000; W1250000
 Descriptors: Western U.S.; engineering geology; earthquakes; United States; accelerograms; response; structures; strong motion; statistical analysis; 1933-1971; modified Mercalli scale; intensity; seismographs; magnitude
 Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894722 78-27863
Effects of site conditions on floor response spectra
 Kumar, R. R.; Beresford, P. J.
 Dames & Moore, London, GBR
 Sixth world conference on earthquake engineering. New Delhi, India, Jan. 10-14, 1977
 World Conf. Earthquake Eng., Proc. 6, 2600-2608p., 1977

894712 78-27744

Plane vibrations of saturated soil in structural foundation

Fiskin, J. M.; Fiskin, L. A.
Sixth world conference on earthquake engineering. New
Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2350-2355p., 1977
2 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.

Descriptors: foundations; soil mechanics; structures;
materials; properties; saturated materials; response;
vibration; one-dimensional models; models; layered media;
stability; numerical analysis; stress; loading; finite
element analysis; statistical methods; elastic waves;
propagation; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894702 78-28089

**Use of analytical and statistical techniques to assess
in-situ soil test procedures**

Werner, S. D.; Van Dillen, D.
Aghabian Assoc., El Segundo, Calif., USA
Sixth world conference on earthquake engineering. New
Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2291-2296p., 1977
2 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.; sects.

Descriptors: soil mechanics; materials; properties;
shear modulus; materials; properties; in situ; strain;
elastic constants; finite element analysis; statistical
methods; response; sand; clastic sediments; boreholes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894639 78-27915

The seismic behaviour of river valleys

Moss, P. J.; Carr, A. J.
Sixth world conference on earthquake engineering. New
Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2274-2279p., 1977
2 REFS.

Subfile: B
Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English

illus.; table, sects.
Descriptors: soil mechanics; foundations; applications;
bridges; response; valleys; seismic response; finite
element analysis; statistical methods; acceleration;
alluvium; clastic sediments
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894698 78-27655

Boundary conditions in soil amplification studies

Ayala, G. A.; Aranda, G. R.
Sixth world conference on earthquake engineering. New
Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2268-2273p., 1977
6 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.; sects.

Descriptors: soil mechanics; materials; properties;
response; elastic waves; propagation; amplitude; numerical
analysis; seismic response; materials; properties;
transmission; one-dimensional models; models; mathematical
models; shear stress; S-waves; body waves; semi-infinite
media; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894697 78-27946

Study of effects of a berm on the stability on rockfill dams during earthquakes

Omamoto, S.; Tamura, C.; Oimachi, T.; Kato, K.
Sixth world conference on earthquake engineering. New Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2232-2237p., 1977
3 REFS

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Latitude: N390000; Longitude: E1450000; E1350000
Descriptors: Japan; engineering geology; dams; stability; earthquakes; rockfill dams; berms; vibration; two-dimensional models; stress; foundations; studies; numerical analysis; stress; foundations; response; aseismic design; elastic waves; velocity; transducers; Kisenkawa Dam; finite element analysis; statistical methods; Asia
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894687 78-28111

Soil liquefaction analysis based on field observations

Vegetian, M. K.; Whitman, R. V.
Northwest Univ., Dep. Civ. Eng., Boston, Mass., USA; Mass. Inst. Technol., USA
Sixth world conference on earthquake engineering. New Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2441-2447p., 1977
3 REFS

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Note: With discussion, illus.

Descriptors: earthquakes; soil mechanics; effects; materials; properties; liquefaction; dynamic properties; acceleration; magnitude; intensity; shear stress; pore pressure; statistical analysis; probability; new methods; Liquefaction Potential Index; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894680 78-28049

Characteristics of semi-infinite element and its application to dynamic problem

Imanishi, N.; Takegawa, Y.; Iguro, M.
Shimizu Constr. Co., Tokyo, JPN

Sixth world conference on earthquake engineering. New Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2395p., 1977
Subfile: B

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Latitude: N350000; Longitude: E1401500; E1390000
Descriptors: Japan; engineering geology; earthquakes; Asia; Honshu; Tokyo; dynamic properties; finite element analysis; statistical methods; semi-infinite element; ground motion; response; 1974
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894677 78-27753

Seismic analysis of dam-reservoir-foundation systems

Finn, W. D. L.; Varoglu, E.
Sixth world conference on earthquake engineering. New Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2392p., 1977
Subfile: B

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

Descriptors: dams; foundations; response; reservoirs; half-space; elastic materials; infinite media; soil mechanics; acceleration; finite element analysis; statistical methods; layered media
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894674 78 27942
Ground behaviors from numerical calculations and dynamic tests

Dhaski, M.
Sixth world conference on earthquake engineering. New Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2389p., 1977
1 REFS.

Subfile B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
Descriptors: *soil mechanics; materials; properties; dynamic properties; materials; properties; ground motion; subgrade; damping; settlement; bearing capacity; numerical analysis; cohesive materials; failure; loading; Poisson's ratio; elastic constants; finite element analysis; statistical methods; elasticity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894659 78-28051
Evaluation of liquefaction potential of sandy deposits by a statistical method

Inimoto, K.
Sixth world conference on earthquake engineering. New Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2201-2206p., 1977
3 REFS.

Subfile B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus.: tables
Descriptors: *soil mechanics; *earthquakes; materials; properties; effects; liquefaction; materials; properties; sand; clastic sediments; granular materials; statistical analysis; water table; acceleration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894658 78 27717
Probabilistic evaluation of liquefaction with an application to a site near a subduction zone

Ghouse, C. B.; Guzman, R.; Espana, C.
Fugro Inc., Long Beach, Calif., USA
Sixth world conference on earthquake engineering. New Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2195-2200p., 1977
4 REFS.

Subfile B

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus.: sect.; sketch map
Latitude: N10000; S050000 Longitude: E1160000; E1060000
Descriptors: *soil mechanics; *Indonesia; materials; properties; engineering geology; liquefaction; earthquakes; Java; coastal environment; probability; subduction zones; magnitude; effects; ground motion; triaxial tests; experimental studies; cyclic processes; strength; case studies; materials; properties; attenuation; Asia
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894656 78-27710

Likelihood of liquefaction

Chou, I. H.; Oguntala, A.
Dames & Moore, Cranford, N.J., USA
Sixth world conference on earthquake engineering. New Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 2183-2188p., 1977
16 REFS.

Subfile B
Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
illus.
Descriptors: *soil mechanics; *earthquakes; materials; properties; effects; liquefaction; materials; properties; stochastic processes; probability; statistical analysis; loading; saturated materials; ground motion; water table; depth
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894637 78-28076
Dynamic and earthquake analysis of some shear wall structures with openings and wall diaphragms frames considering the unequal settlement's effect of foundation soil
 Ungureanu, N.; Clongradu, I.
 Sixth world conference on earthquake engineering. New Delhi, India. Jan. 10-14, 1977
 World Conf. Earthquake Eng., Proc. 6, 1712p., 1977
 Subfile: 8
 Country of Publ.: International
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 Descriptors: foundations; earthquakes; soil mechanics; response; materials; properties; effects; experimental studies; dynamic properties; piers; piles; finite element analysis; physical models; three-dimensional models; materials; statistical methods; properties
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894633 78-27864
An application of finite element method to soil-foundation interaction analyses
 Kuribayashi, E.; Iida, Y.
 Sixth world conference on earthquake engineering. New Delhi, India. Jan. 10-14, 1977
 World Conf. Earthquake Eng., Proc. 6, 1708p., 1977
 Subfile: 8
 Country of Publ.: International
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 Latitude: N340000; Longitude: E1310000; E1304500
 Descriptors: Japan; engineering geology; foundations; Asia; bridges; Kanmon Bridge; Honshu; Kyushu; elasticity; dynamic properties; finite element analysis; statistical methods; Shimonoseki; Moji
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894636 78-28073
Elastic-plastic dynamic analysis of soil-foundation-structure interaction
 Ukaji, K.; Hoeg, K.; Shah, H. C.
 Ohbayashi-Gumi Ltd., Tokyo, JPN; Stanford Univ., USA
 Sixth world conference on earthquake engineering. New Delhi, India. Jan. 10-14, 1977
 World Conf. Earthquake Eng., Proc. 6, 1711p., 1977
 Subfile: 8
 Country of Publ.: International
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 Descriptors: earthquakes; foundations; soil mechanics; effects; structures; materials; properties; response; dynamic properties; finite element analysis; statistical methods; elastoplastic materials; stress; strain; elasticity; loading; materials; properties
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894635 78-27777
Studies on practical idealization of soil-pile-group system concerning dynamic interaction
 Goto, Y.
 Ohbayashi-Gumi Ltd., Tokyo, JPN
 Sixth world conference on earthquake engineering. New Delhi, India. Jan. 10-14, 1977
 World Conf. Earthquake Eng., Proc. 6, 1710p., 1977
 Subfile: 8
 Country of Publ.: International
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic

894618 78-27838

Soil-pile-structure-field interaction under seismic loads

Kamli, H.; Kost, G.; Gantayat, A.
Eng. Decis. Anal. Co., Palo Alto, Calif., USA
Sixth world conference on earthquake engineering. New
Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 1590-1595p., 1977
15 REFS

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.
Descriptors: *foundations; *soil mechanics; *piles;
materials; properties; response; loading; finite element
analysis; statistical methods; structures; fluid mechanics;
materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894612 78-28096

Soil-structure interaction in nuclear power plants: a comparison of methods

Wight, L. H.
Univ. Calif., Lawrence Livermore Lab., Livermore, Calif.,
USA
Sixth world conference on earthquake engineering. New
Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 1549-1554p., 1977
4 REFS

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.
Descriptors: *nuclear facilities; *foundations; stability
; response; soil mechanics; loading; computer programs;
finite element analysis; statistical methods; SHOCK; LUSH;
design; spectral analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894600 78-27786

Evaluation of methods for earthquake analysis of structure-soil interaction

Gutierrez, J. A.; Chopra, A. K.
Univ. Calif., Dep. Civ. Eng., Berkeley, Calif., USA
Sixth world conference on earthquake engineering. New
Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 1449-1454p., 1977
11 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.
Descriptors: *earthquakes; *foundations; effects;
structures; response; soil mechanics; finite element
analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894562 78-28039

Statistic assessment of strong earthquake intensities variation in urban areas

Stojkovic, M.
Sixth world conference on earthquake engineering. New
Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 932p., 1977

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Descriptors: *earthquakes; intensity; urban areas; soil
mechanics; buildings; statistical analysis; isoseismal
lines
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894552 78-27944

A macrozoning map of Japan on amplification characteristic of 1-10 sec strong ground motions

Ohta, Y.; Kigami, H.; Okada, S.
Sixth world conference on earthquake engineering. New
Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 919p., 1977

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Latitude: N300000 Longitude: E1470000; E1290000
Descriptors: *Japan; engineering geology; earthquakes;
Asia; amplitude; strong motion; ground motion; structures;
1961-1976; seismic risk; alluvium; clastic sediments;
statistical analysis; zoning; maps
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894541 78-28036

Seismotectonic study of Northwest Kashmir

Srivastava, V. K.; Chouhan, R. K. S.; Singh, J.
Sixth world conference on earthquake engineering. New
Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng. Proc. 6. 903-904p. 1977
Subfile: B

Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English

Latitude: N327000; N370000 Longitude: E0801500; E0723000
Descriptors: India; engineering geology; tectonophysics
; earthquakes; plate tectonics; Asia; Jammu and Kashmir;
seismicity; epicenters; focus; mechanism; probability;
seismic risk; seismotectonics
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894528 78-27922

An approach to establishing design surface displacements for active faults

Nail, K. Cluff, L. S.
Woodward-Clyde Consult. San Francisco, Calif., USA
Sixth world conference on earthquake engineering. New
Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng. Proc. 6. 811-816p. 1977
7 REFS.

Subfile: B

Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English

Descriptors: earthquakes; effects; displacements;
active faults; faults; probability; seismic risk;
structures; engineering geology; Bayesian analysis;
statistical analysis; dislocations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894527 78-27881

Statistical seismicity of Taiwan

Lou, V. S.; Chu, B. P. H.
Converse Davis Dixon Assoc. Pasadena, Calif., USA
Sixth world conference on earthquake engineering. New
Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng. Proc. 6. 806-810p. 1977
Subfile: B

Country of Publ.: International

Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English

illus. table

Latitude: N220000; N253000 Longitude: E1237000; E1200000
Descriptors: Taiwan; engineering geology; earthquakes;
Asia; seismicity; statistical analysis; 1920-1974; site
exploration; attenuation; acceleration; probability;
velocity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894524 78-27662

Seismic risk analysis of Indian Peninsula

Basu, S.; Nigam, N. C.
Sixth world conference on earthquake engineering. New
Delhi, India. Jan. 10-14, 1977
World Conf. Earthquake Eng. Proc. 6. 782-790p. 1977
9 REFS.

Subfile: B

Country of Publ.: International
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Languages: English

Note: With discussion. illus., sketch maps
Latitude: N060000; N400000 Longitude: E0980000; E0660000
Descriptors: India; engineering geology; earthquakes;
Asia; seismic risk; statistical analysis; acceleration;
velocity; ground motion; probability
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894523 78-27637

Seismic risk and seismic zoning of the Caracas Valley

Alonso, J. L.; Larotta, J.
Sixth world conference on earthquake engineering. New
Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 776-782p., 1977
4 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: sketch maps
Latitude: N103500; Longitude: W0665600; W0665600
Descriptors: Venezuela; Caracas; seismic risk;
earthquakes; South America; acceleration; Poisson's ratio;
microzoning; ground motion; probability; statistical analysis;
elastic constants; seismicity; zoning
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894522 78-28008

A seismic risk contour map for Nicaragua

Shah, H. C.; Zsutyi, T. C.; Montgat, C. P.; Kiremidjian, A.
S.; Padilla, L.; Kranwinkel, H.
Stanford Univ., Dep. Civ. Eng., Stanford, Calif., USA
Sixth world conference on earthquake engineering. New
Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 770-775p., 1977
3 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.: tables, sketch map
Latitude: N105000; Longitude: W0822000; W0874500
Descriptors: Nicaragua; engineering geology;
earthquakes; Central America; seismic risk; isoseismal
lines; probability; Poisson's ratio; elastic constants;
mathematical models; models; statistical analysis;
acceleration; attenuation; seismic sources
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894518 78-28093

Seismic design regionalization maps for the United States

Whitman, R. V.; Donovan, N. C.; Bolt, B. A.; Algermissen, S.
I.; Sharpe, R. L.
Mass. Inst. Technol., Dep. Civ. Eng., Cambridge, Mass., USA;
Dames & Moore, USA
Sixth world conference on earthquake engineering. New

Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 742-749p., 1977
Subfile: B

Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Note: With discussion, sketch maps
Latitude: N180000; Longitude: W0670000; E1700000
Descriptors: United States; engineering geology;
earthquakes; seismic risk; ground motion; statistical
analysis; probability
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894501 78-27749

Probabilistic assessment of seismic risk on local soil sediments

Faccioli, E.
Sixth world conference on earthquake engineering. New
Delhi, India, Jan. 10-14, 1977
World Conf. Earthquake Eng., Proc. 6, 584-591p., 1977
7 REFS.

Subfile: B
Country of Publ.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Note: With discussion, illus.
Descriptors: Soil mechanics; applications; seismic risk;
earthquakes; soil dynamics; statistical analysis;
probability; amplitude; Mexico City; clay; elastic
sediments; velocity; acceleration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

891500 78 28115

A probabilistic approach to estimate design earthquake for a site in terms of magnitude, epicentral distance and return period

Yoshikawa, S.; Iwasaki, Y. T.; Ishii, E.
Sixth world conference on earthquake engineering. New Delhi, India, Jan 10-14, 1977
World Conf Earthquake Eng. Proc. 6. 575-583p., 1977
9 REFS.

Subfile B
Country of Publ. International
Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
Note With discussion. illus. sketch maps
Latitude N30-00'00; N45-00'00 Longitude E14-00'00; E19-00'00
Descriptors Japan; engineering geology; earthquakes; Asia; Osaka; epicenters; statistical analysis; magnitude; intensity; seismic risk
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

894210 78 27984

Classification of earthquake prediction information for practical use

Kiritake, T.
Tectonophysics 46 1-2. 175-185p., 1978
CODEN TECTOAM 9 REFS

Subfile B
Country of Publ. International
Doc Type SERIAL Bibliographic Level ANALYTIC
Languages English
illus. tables
Descriptors *geologic hazards; *earthquakes; *seismology; prediction; precursors; engineering geology; environmental geology; statistical analysis; magnitude; classification; time windows
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

892933 78 24067

Statistische Untersuchung der Hangformen im Opalinuston der Franckischen Alb
Statistical analysis of slope forms in the Al(t) clay of the Franconian Alb

Tschierske, N.
Rock Mech. (Vienna) 10 3. 113-123p., 1978
CODEN RMEWAS 9 REFS.

Subfile B
Country of Publ. International
Doc Type SERIAL Bibliographic Level ANALYTIC
Languages German Summary Languages English
illus. tables

Latitude N48-30'00; N50-00'00 Longitude E01-20'00; E01-30'00
Descriptors West Germany; *soil mechanics; engineering geology; deformation; slope stability; clays; Germany; Europe; Bavaria; Franconian Jura; slope stability; stress
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

892232 78-23990

Determination of wave-induced pressures in the soil media contiguous to a buried pipeline

Lai, N. W.; Dominguez, R. F.
Tex. A&M Univ., Dep. Civ. Eng., College Station, Tex., USA
Third international conference on port and ocean engineering under arctic conditions, Fairbanks, Alaska, United States, Aug 11-15, 1975
Int. Conf. Port Ocean Eng. Arct. Cond., Proc. 3, Vol. 2. 1059-1069p., 1975
8 REFS.

Subfile B
Country of Publ. International
Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
illus.

Descriptors *engineering geology; *foundations; site exploration; stability; pipelines; soil mechanics; offshore environment; models; mathematical models; finite element analysis; statistical methods; theoretical studies; failure; erosion; liquefaction
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

891785 78-23164

The influence of system stiffness and test mode on phenomena accompanying stick-slip on fault surfaces

Goodman, R. E.; Sundaram, P. N.
Univ. Calif. Berkeley, Dep. Civ. Eng., Berkeley, Calif., USA

Proceedings of Conference II: experimental studies of rock friction with application to earthquake prediction

Byerlee, J. (organizer); Brace, W. F. (organizer); Evernden, J. F. (EDITOR)

Conference II: experimental studies of rock friction with application to earthquake prediction. Stanford, Calif., USA

Publ. U. S. Geol. Surv., Off. Earthquake Stud.
143-188p. 1977

22 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Languages: English
Note: With discussion by Logan, J. M., illus., tables

Descriptors: faults; deformation; rock mechanics; seismology; mechanics; experimental studies; materials; properties; seismic sources; stick-slip; loading; elastic limit; shear stress; models; finite element analysis; statistical methods; stress; distribution; materials; properties

Section Headings: 16 (STRUCTURAL GEOLOGY)

890969 78-23125

Analysis of fracture orientations for input to structural models of discontinuous rock

Mahab, M. A.; Bolstad, D. D.; Alldredge, J. R.; Shanley, R.

U. S. Bur. Mines, Denver Min. Res. Cent., Denver, Colo., USA
U. S. Bur. Mines, Rep. Invest. 7669. 76p., 1972

CODEN XBMIA6 10 REFS
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

Languages: English
illus., tables

Descriptors: structural analysis; rock mechanics; automatic data processing; fractures; materials; properties; structural geology; orientation; materials; properties; models; mathematical models; cluster analysis; statistical methods; computer programs; sediments; till; clastic sediments; pebbles; coal; organic residues; porphyry copper; Poisson's ratio; elastic constants

Section Headings: 16 (STRUCTURAL GEOLOGY)

890963 78-23850

A method for the prediction of stresses in an isotropic inclusion or orebody of irregular shape

Oudenhoven, M. S.; Babcock, C. D.; Blake, W.

U. S. Bur. Mines, Denver Min. Res. Cent., Denver, Colo., USA
U. S. Bur. Mines, Rep. Invest. 7645. 36p., 1972

CODEN XBMIA6 4 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

Languages: English
illus., tables

Descriptors: rock mechanics; materials; properties; stress; materials; properties; isotropic materials; inclusions; ore bodies; elasticity; finite element analysis; statistical methods; loading; Young's modulus; elastic constants; models; strain

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

890937 78-23873

Technique of measuring initial deformation around an opening: analysis of two raise-bore tests

Waddell, G. G.; Crocker, T. J.; Skinner, E. H.

U. S. Bur. Mines, Spokane Min. Res. Lab., Spokane, Wash., USA

U. S. Bur. Mines, Rep. Invest. 7505. 60p., 1971
CODEN XBMIA6 17 REFS.

Subfile: B
Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

Languages: English
illus., tables

Latitude: N473000 Longitude: W1161500; W1170500
Descriptors: underground installations; rock mechanics; litho; mines; elasticity; engineering geology; deformation; Kootenai County; in situ; experimental studies; finite element analysis; statistical methods; excavations; stress; United States; Coeur d'Alene; Lucky Friday Mine; Mullan; faults; strike-slip faults; metasedimentary rocks; Precambrian; field studies

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

890070 78-23832
Gonzaga Univ., USA
Determining seepage characteristics of mill-tailings dams by the finite-element method
Knealy, C. D.; Busch, R. A
U. S. Bur. Mines, Spokane Min. Res. Lab., Spokane, Wash., USA
CODEN XBMIA6
U. S. Bur. Mines, Rep. Invest. 7477, 113p., 1971
Subfile B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
Languages: English
illus.: tables
Descriptors: dams; soil mechanics; automatic data processing; design; materials; properties; engineering geology; embankments; permeability; seepage; finite element analysis; statistical methods; computer programs; models; mathematical models; hydraulics; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

890922 78-23827
A method for estimating strength of rock containing planes of weakness
Hickman, F. G.; Ellickson, M. L.
U. S. Bur. Mines, Denver Min. Res. Cent., Denver, Colo., USA
U. S. Bur. Mines, Rep. Invest. 7449, 29p., 1970
CODEN XBMIA6 12 REFS.
Subfile B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
Languages: English
illus.: tables
Descriptors: rock mechanics; slope stability; failure; shear strength; experimental studies; loading; uniaxial tests; triaxial tests; open pit mining; limestone; carbonate rocks; sandstone; clastic rocks; gneiss; gneisses; data analysis; stress; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

890583 78-23982
Erfahrungen mit mathematisch-geologischen Verfahren bei regionalen ingenieurgeologischen Arbeiten
Experiences with mathematical-geological methods in engineering-geological works
Kannel, H.; Rev. F.
Zingenhardt, W.
Z. Angew. Geol. 1 22, 37-42p., 1976
CODEN ZANGAK
Subfile B

Country of Publ.: German Democratic Republic
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: German Summary Languages: Russian
illus.: table, sketch map
Latitude: N512500; N522500 Longitude: E0120000; E0115500
Descriptors: East Germany; mathematical geology; engineering geology; methods; rock mechanics; classification; Halle; Germany; Europe; statistical analysis; linear regression analysis; variance analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

890077 78-17609
Elastic-plastic stability analysis of mine-waste embankments
Corp. E. L.; Schuster, R. L.; McDonald, M. M.
U. S. Bur. Mines, Spokane Mining Res. Cent., Spokane, Wash., USA
U. S. Bur. Mines, Rep. Invest. 8069, 98p., 1975
CODEN XBMIA6 124 REFS.
Subfile B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
Languages: English
illus.: tables, sketch maps
Descriptors: West Virginia; soil mechanics; slope stability; automatic data processing; engineering geology; elasticity; embankments; failure; industrial waste; mines; plasticity; seepage; stress; finite element analysis; statistical methods; engineering properties; permeability; grain size; shear strength; Poisson's ratio; elastic constants; United States; Buffalo Creek Valley; Middle Fork Valley; Saunders
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

890069 78-17645

In situ determination of rock behavior by overcore stress relief method, physical property measurements, and initial deformation method

Skinner, E. H.; Waddell, G. G.; Conway, J. P.
U. S. Bur. Mines, Spokane Min. Res. Cent., Spokane, Wash.

U. S. Bur. Mines, Rep. Invest. 7062, 87p., 1974

CODEN: XBMIA6 56 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

Language: English

illus., tables, sketch map
Latitude: N473000 Longitude: W1160000; W1164500
Descript.: Idaho; rock mechanics; engineering geology;
field studies; Kootenai County; materials; properties;
United States; Coeur d'Alene; deformation; failure; in situ
physical properties; stress; statistical analysis; temperature; heat
flow; experimental studies; models; strain; biaxial tests;
dynamics; elasticity; density; Poisson's ratio; elastic
constants
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

890078 78-17651

Statistical comparison of the pulse and resonance methods for determining elastic moduli

Thill, R. E.; Peng, S. S.

U. S. Bur. Mines, Twin Cities Min. Res. Cent., Minneapolis, Minn., USA

U. S. Bur. Mines, Rep. Invest. 7831, 24p., 1974

CODEN: XBMIA6 50 REFS

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

Language: English

illus., tables
Descript.: rock mechanics; elasticity; Saint Cloud
Gray; granodiorite; Tennessee Marble; Young's modulus;
stress; moisture; statistical analysis; pulse methods;
resonance methods; elastic constants; shear; Poisson's
ratio; granodiorite; granite; granodiorite family; marble;
marbles; ultrasonic methods; velocity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

890034 78-17621

Analysis of factors influencing fracture initiation and orientation in oil reservoir sandstone

Kumar, G. A.; Frohne, K. H.

U. S. Bur. Mines, Morgantown Energy Res. Cent., Morgantown,

W. Va., USA
U. S. Bur. Mines, Rep. Invest. 7813, 22p., 1973
CODEN: XBMIA6 24 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

Language: English

illus., tables
Descript.: rock mechanics; failure; hydraulic
fracturing; reservoir rocks; sandstone; elastic rocks;
petroleum; experimental studies; materials; properties;
permeability; strength; dynamics; elasticity; stress;
saturation; pressure; orientation; loading; statistical
analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

890016 78-17662

Computer program for pit slope stability analysis by the finite element stress analysis and limiting equilibrium method

Wang, F. D.; Sun, M. C.; Ropchan, D. M.

U. S. Bur. Mines, Denver Min. Res. Cent., Denver, Colo., USA

U. S. Bur. Mines, Rep. Invest. 7685, 53p., 1972

CODEN: XBMIA6 9 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

Language: English

illus., tables
Descript.: slope stability; soil mechanics; automatic
data processing; failure; materials; properties;
engineering geology; circular failure; shear strength;
finite element analysis; statistical methods; stabilization;
equilibrium; stress; plane failure; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

889575 78-17010

Possible interaction between thin-skinned and basement tectonics in the Appalachian Basin and its bearing on exploration for fractured reservoirs in the Devonian shale

Dean, C. S.; Overbey, W. K., Jr
Dep. Energy, Morgantown Energy Res. Cent., Morgantown, W. Va., USA

The Geological Society of America, Southeastern Section, 27th annual meeting, Chattanooga, Tenn., United States, April 6-7, 1978

Geol. Soc. Am. Abstr. Programs 10 4, 166p., 1978
CODEN GAAPRC

Subfile B

Country of Publ.: United States

Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic

Level ANALYTIC

Languages English
Descriptors Appalachians; rock mechanics; natural gas; structural geology; applications; exploration; tectonics; reservoir rocks; Appalachian Basin; North America; basement; thickness; shale; clastic rocks; Devonian; Paleozoic; permeability; fractures; stress; pore pressure; tensile strength; compressive strength; joints; evolution; thin-skinned tectonics; finite element analysis; statistical methods; reconstruction
Section Headings: 16 (STRUCTURAL GEOLOGY)

889047 78-17687

Finite element analysis and design of chemically stabilized tunnels

Tan, D. Y.

Stanford Univ., Stanford, Calif., USA

219p., 1977

Subfile B

Degree Level Doctoral

Country of Publ.: United States

Doc Type THESES Bibliographic Level MONOGRAPHIC

Languages English

Diss. Abstr. Int., Vol. 38, No. 9, p. 4377R-4378B, 1978.

Descriptors tunnels; automatic data processing; soil mechanics; stability; engineering geology; deformation; grouting; creep; stabilization; design; finite element analysis; statistical methods; land subsidence; case studies; theoretical studies; subways
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

888816 78-17611

Contribution a l'etude du complexe barrage-fondation et application des seismes dus au remplissage de certains reservoirs
The dam-foundation complex and an explanation of earthquakes

due to the filling of certain reservoirs

Diab, B.

Liege, Univ., Cent. Etud., Rech. Essays Sci. Geol. Civ.,

Mom. 46, 75p., 1974

CODEN MFCEBF 30 REFS.

Subfile B

Country of Publ.: Belgium

Doc Type SERIAL Bibliographic Level MONOGRAPHIC

Languages French Summary Languages Dutch

illus.

Descriptors dams; foundations; earthquakes; automatic data processing; reservoirs; gauges; engineering geology; gravity dams; experimental studies; seismology; flow regime; finite element analysis; statistical methods; infiltration; ground water; pore pressure; rock mechanics
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

897774 78-17740

The dynamic response of gravity platforms

Dunbar, R. E.; Elford, P. J.

Earthquake Eng. Struct. Dyn. 6 2, 123-139, 1978

CODEN EUEEFG 20 REFS

Subfile B

Country of Publ.: International

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages English

illus.; tables

Descriptors marine installations; foundations; engineering geology; theoretical studies; petroleum engineering; gravity platforms; response; finite element analysis; statistical methods; models; North Sea; Atlantic Ocean; soil mechanics
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

887653 78-17503

Bayesian decision analysis of a statistical rainfall/runoff relation

Gray, H. A.
Ariz., Univ. Dep. Hydrol. Water Resour., Tech. Rep. 14.
67p., 1972

CODEN: AHWTAE

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC

Language: English

Latitude: N322000 Longitude: W1110000; W1110000
Descript.: Arizona; hydrology; engineering geology;
surveys; highways; atmospheric precipitation; rain;
runoff; statistical methods; United States; Rillito Creek;
tucson; design; bridges; mathematical geology;
hydrogeology; site exploration

Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

887538 78-17696

Statistical zonation as an aid to geotechnical evaluation of oceanic sediments

Andrews, D. E.; Cubitt, J. M.
Syracuse Univ., Dep. Geol., Syracuse, N.Y., USA
The Geological Society of America, Northeastern Section,
13th annual meeting, Boston, Mass., United States, March
9-11, 1978

Geol. Soc. Am. Abstr. Programs 10: 2, 30p., 1978

CODEN: GAFBFC

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

Descript.: sediments; Atlantic Ocean; soil mechanics;
properties; engineering geology; experimental studies;
engineering properties; North Atlantic; cores; multivariate
analysis; maps; statistical methods; zoning

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

887245 78-20695

The development and application of a finite element program for the solution of geotechnical problems

Rodrigues, J. S. N.
Univ. of Surrey, Guildford, GBR
unknown, 1975

Subfile: C

Degree Level: Doctoral

Country of Publ.: United Kingdom

Doc Type: THESES Bibliographic Level: MONOGRAPHIC

Language: English
English abstract in Diss. Abstr. Int., Sect. C, Vol. 37,
No. 1, p. 98, 1976.

Descript.: foundations; engineering geology; automatic data
excavations; settlement; computer programs; stress;
finite element analysis; statistical methods; Algol
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

886955 78-20791

**Komplexe Bearbeitung ingenieurgeologischer Daten mit Klassifizierungs- und Erkennungsverfahren
Complex treatment of engineering-geological data by means of classification and identification methods**

Harff, J.; Spornholz, G.

Z. Angew. Geol. 21: 8, 372-376p., 1975

CODEN: ZANGAK 4 REFS.

Subfile: B

Country of Publ.: German Democratic Republic

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: German Summary Languages: Russian

Title: Tables

Latitude: N540000; N540000 Longitude: E0120000; E0120000

Descript.: automatic data processing; soil mechanics;
East Germany; engineering geology; materials; properties;
classification; Rostock; Germany; Europe; cluster
analysis; statistical methods; cohesive materials; GREIF 3;
sediments; materials; properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

886326 78-20657

Slope stability analysis by the finite element stress analysis and limiting equilibrium method

Wing, F. D.; Sun, M. C.
U. S. Bur. Mines, Denver Min. Res. Cent., Denver, Colo., USA
U. S. Bur. Mines, Rep. Invest. 7341, 16p., 1970
CODEN: XDMIA6 15 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
Languages: English
illus., tables

Descriptors: slope stability; soil mechanics; failure; elasticity; finite element analysis; stress; strain; statistical methods; equilibrium; shear strength; materials; properties; open-pit mining; stabilization; Poisson's ratio; elastic constants

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

885995 78-21010

Morphometric analysis of dolines for predicting ground subsidence, Monroe County, West Virginia

Ogden, A. E.; Reger, J. P.
W. Va. Univ., Dep. Geol., Morgantown, W. Va., USA

Hydrologic problems in karst regions

Dillmarer, R. R. (EDITOR); Csallany, S. C. (EDITOR)
International symposium on hydrologic problems in karst regions, Bowling Green, Ky., United States, April 26-29, 1976

Publ.: West. Ky. Univ.
130-139p., 1977
8 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

illus., tables, strat. col., sketch maps
Latitude: N372300; Longitude: W0801500; W0805000
Descriptors: West Virginia; geomorphology; solution features; engineering geology; land subsidence; dolines; Monroe County; United States; karst; prediction; Greenbrier Limestone; limestone; carbonate rocks; limestone; lineaments; statistical analysis
Section Headings: 23 (SURFICIAL GEOLOGY, GEOMORPHOLOGY)

884587 78-20682

Analysis of soil deformation by elastic-plastic work-hardening model

Iisu, J. R.

Ohio State Univ., Columbus, Ohio, USA
20p., 1977

Subfile: B
Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 38, No. 8, p. 3796B, 1978.
Descriptors: soil mechanics; deformation; experimental studies; stress; strain; finite element analysis; statistical methods; triaxial tests; compression; elasticity; plasticity; theoretical studies; embankments; highways
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

883402 78-14258

Study of the relations between subsidence, drawdown, and lithology in the Houston-Galveston area

Valente, J. T.
Univ. Texas, Austin, Texas, USA
1976

Subfile: B
Degree Level: Master's
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Latitude: N290000; Longitude: W941500; W0960000
Descriptors: Texas; automatic data processing; soil mechanics; engineering geology; materials; properties; Harris County; Galveston County; land subsidence; clays; United States; drawdown; sand; clastic sediments; compressibility; compaction; statistical analysis; models; materials; properties; Houston; Galveston; Gulf Coastal Plain; North America
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

882062 78-14288

Computer-based data bank and statistical analysis of slope instability phenomena

Carraia, A.; Carratelli, F. P.; Merenda, L.
Z. Geomorphol. 21: 2, 187-222p., 1977
CODEN: ZGMPAG 58 REFS.

Subfile B

Country of Publ.: Germany, Federal Republic of
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: German
illus., charts, tables, geol. sketch map
Latitude: N380000; N401000 Longitude: E0170000; E0154500
Descriptors: Italy; automatic data processing;
geomorphology; engineering geology; mass movements;
slope stability; landslides; Europe; Calabria; Crati Basin
erosion; information systems; statistical analysis;
quantitative geomorphology; causes; controls
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

891998 78-14433

**Prognoz prosadochnosti lessovykh porod Priangara'ya
Predicting the substance of loess in the Angara region**

Ryashchenko, T. G.; Vasil'yeva, E. N.
Sov. Geol. 8, 126-133p., 1976
CODEN: SVGLA2 7 REFS.

Subfile B

Country of Publ.: Union of Soviet Socialist Republics
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Russian
illus., tables
Latitude: N523000; N573000 Longitude: E1040000; E1000000
Descriptors: USSR; engineering geology; sediments;
materials; properties; clastic sediments; loess;
materials; properties; Angara; Ust'-Il'm; Siberia;
chemical composition; statistical analysis; Boguchan
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

881821 78-14365

Treatment of hourglass patterns in low order finite element codes

Kosloff, D.; Frazier, G. A.
Calif. Inst. Technol., Seismol. Lab., Pasadena, Calif., USA;
Univ. Calif., San Diego
Int. J. Numer. Anal. Methods Geomech. 2: 1, 57-72p.,
1978
ISSN: 0363-9061 8 REFS.

Subfile B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Calif. Inst. Technol., Div. Geol. Planet. Sci., Contrib. No.

2895. illus.

Descriptors: mathematical geology; engineering geology;
methods; techniques; finite element analysis; mathematical
stress; statistical methods; hourglass patterns; stress;
strain; deformation; two-dimensional models; isotropic
three dimensional models; theoretical studies; isotropic
materials; elastic materials; matrices; Young's modulus;
elastic constants; Poisson's ratio; beams; structural
mechanics; rigidity

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

881820 78-14270

**Associated and non-associated constitutive relations for
undrained behaviour of isotropic soft clays**

Banerjee, P. K.; Stipho, A. S.
Int. J. Numer. Anal. Methods Geomech. 2: 1, 35-56p.,
1978
ISSN: 0363-9061 20 REFS.

Subfile B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., table

Descriptors: soil mechanics; sediments; experimental
studies; properties; soft clay; engineering properties;
isotropic materials; undrained materials; stress; strain;
consolidation; loading; matrices; vectors; Cam clay models;
pore pressure; Poisson's ratio; elastic constants;
finite element analysis; statistical methods; mathematical
methods; boundary element analysis; clays; physical
properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

881819 78-14299

A mathematical model for predicting coupled heat and water movement in unsaturated soil

Dempsey, B. J.
Univ. Ill Urbana-Champaign, Dep Civ Eng, Urbana, Ill, USA

Int J Numer Anal Methods Geomech 2 1, 19 21p, 1978

ISSN 0363-9061 34 REFS

Subfile B

Country of Publ: International

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages: English

illus: tables

Descriptors: soil mechanics; foundations; materials; properties; settlement; moisture; mathematical models; models; movement; water; heat transfer; unsaturated materials; finite element analysis; statistical methods; prediction; water table; atmospheric precipitation; fluid mechanics; Darcy's law; computer programs; hydrologic cycle; examples; Laveland Sand; Illinotian; upper Pleistocene; Pleistocene; Quaternary; till; clastic sediments; applications; pavement; materials; properties
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

881818 78-14388

A three-dimensional deformation analysis of the Storvass Dam

Martin, H. C.

Ohio State Univ., Dep Civ. Eng., Columbus, Ohio, USA

Int J Numer Anal Methods Geomech 2 1, 3 17p, 1978

ISSN 0363 9061 5 REFS

Subfile B

Country of Publ: International

Doc Type SERIAL Bibliographic Level ANALYTIC

Languages: English

illus: sects
Descriptors: dams; rock mechanics; foundations; deformation; rockfill dams; Storvass Dam; three-dimensional models; models; computer programs; finite element analysis; statistical methods; stress; strain; triangular tests; KVASOL; matrices; Young's modulus; elastic constants; Poisson's ratio; elastic media; isotropic media; materials; properties; displacements
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

881656 78-14302

Finite element analysis of buried flexible metal culvert structures

Duncan, J M

Laurits Bjerrum memorial volume: contribution to soil mechanics

Jarbo, N (EDITOR); Jostad, J (EDITOR); Kjoernsli, R (EDITOR)

Publ: Norw. Geotech. Inst.

213 222p, 1976

34 REFS.

Subfile B

Country of Publ: Norway

Doc Type BOOK Bibliographic Level ANALYTIC

Languages: English

illus: plates, table

Descriptors: highways; materials; properties; culverts; finite element analysis; statistical methods; engineering geology; shape; soil mechanics; stress; deformation; mathematical methods; California; United States; field studies

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

881575 78-14252

Engineering geology of the northern portion of the Illinois shore of Lake Michigan

Perry, A O.

Purdue Univ., West Lafayette, Indiana, USA

166p, 1977

Subfile B

Degree Level Doctoral

Country of Publ: United States

Doc Type THESIS Bibliographic Level MONOGRAPHIC

Languages: English

Diss. Abstr. Int., vol. 38, No. 7, p. 3037B, 1978.

Latitude: N413000; N423000 Longitude: W0873500; W0880000

Descriptors: Great Lakes; engineering geology; Cook County; Lake County; shorelines; North America; Lake Michigan; Illinois; United States; bluffs; till; clastic sediments; failure; erosion; statistical analysis; management; construction; stabilization

Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

expansive materials
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

881508 78 14327
A substructure method for earthquake analysis of structures including structure-soil interaction
Gutierrez, J. A.; Chopra, A. K.
Univ. Calif., Dep. Civ. Eng., Berkeley, Calif., USA
Earthquake Eng. Struct. Dyn. 6: 1, 51-69p., 1978
CODEN: JUEEG 27 REFS.
Subfile B
Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: foundations; soil mechanics; structures; materials; properties; failure; theoretical studies; ground motion; earthquakes; response; half-space; vibration; mathematical methods; stability; finite element analysis; statistical methods; Fourier analysis; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

880192 78-10798
Probability-based short term design of soil slopes
Ting, W. H.; Yuen, M. S.; Ang, A. H. S.
Can. Geotech. J. 13: 3, 201-215p., 1976
CODEN: CGJDAH 33 REFS.
Subfile B
Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus., tables
Descriptors: slope stability; soil mechanics; embankments; materials; properties; strength; materials; properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

879967 78-10430
Theoretical transient behaviour of saturated and unsaturated soils under load and changing moisture conditions
Richards, B. G.
Aust. CSIRO, Div. Appl. Geomech., Tech. Pap. 16, 23p., 1973
CODEN: AAGTCN 40 REFS.
Subfile B
Country of Publ.: Australia
Doc Type: SERIAL Bibliographic Level: MONOGRAPHIC
Languages: English
illus.
Descriptors: soil mechanics; materials; properties; consolidation; materials; properties; saturation; loading; moisture; theoretical studies; mathematical models; models; finite element analysis; statistical methods; clays;

879047 78-10754
La estabilidad a corto plazo de excavaciones a cielo abierto en la arcilla de la Ciudad de Mexico--The short-term stability of open excavations in Mexico City clay
Resendiz, D.; Zonana, J.

Nabor Carrillo; el hundimiento de la Ciudad de Mexico y Proyecto Texcoco; contribucion de Proyecto Texcoco al VII congreso internacional de mecanica de suelos e ingenieria de cimentaciones--Nabor Carrillo; the subsidence of Mexico City and Texcoco Project; contribution of Texcoco Project to the VII international conference on soil mechanics and foundation engineering
Beleta, M. R. (chairperson)
Publ.: Secr. de Hacienda y Credito Publico
203-227p., 1969
12 REFS.
Subfile: B
Country of Publ.: Mexico
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: Spanish
illus., tables
Latitude: N192500; N192500 Longitude: W0991000; W0991000
Descriptors: Mexico; engineering geology; slope stability; North America; Mexico City; soil mechanics; clays; excavations; plasticity; compression; failure; strain; finite element analysis; statistical methods; ground water; levels; loading
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

878928 78-10467

Finite element analysis of time dependent deformations and pore pressures in excavations and embankments

Osami, A. E.
Stanford Univ., Stanford, Calif., USA
259p., 1977
Subfile: B
Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 38, No. 6, p. 2781B 2782B, 1977.
Descriptors: automatic data processing; soil mechanics; engineering geology; deformation; simulation; time; pore pressure; excavations; embankments; finite element analysis; statistical methods; theoretical studies; mathematical models; models; consolidation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

878819 79-10583

A rational analysis of shallow foundations considering soil-structure interaction

Frager, R. A.; Hardle, I. J.
Aust. Geomech. J., 5: 1, 20-25p., 1975
CIBEN AUGURU 33 REFS.
Subfile: B
Country of Publ.: Australia
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: foundations; structures; design; soil mechanics; anisotropy; elasticity; finite element analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

878815 78-10519

Development of a numerical model for discontinua

Purman, R. C.
Coffey & Hollingsworth Pty., Brisbane, AUS
Aust. Geomech. J., 4: 1, 13-22p., 1974
CIBEN AUGURU 34 REFS.
Subfile: B
Country of Publ.: Australia
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: rock mechanics; materials; properties; joints; materials; properties; discontinua; fractures; mathematical models; models; finite element analysis; statistical methods; simulation; displacements; failure; strain

878169 78-10455

Discrete fracture propagation in rock: laboratory tests and finite element analysis

Ingraffea, A. R.
Univ. of Colorado, Boulder, Colo., USA
374p., 1977
Subfile: B
Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 38, No. 5, p. 2293B-2294B, 1977.
Descriptors: rock mechanics; deformation; Indiana Limestone; fractures; experimental studies; laboratory studies; theoretical studies; mathematical models; finite element analysis; statistical methods; propagation; cracks; loading; limestone; carbonate rocks; granodiorite; granite-granodiorite family
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

878134 78-10303

Multivariate analysis of petrographic and chemical properties influencing porosity and permeability in selected carbonate aquifers in central Pennsylvania

Brown, C. E.
Pennsylvania State Univ., University Park, Pa., USA
220p., 1977
Subfile: B
Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 38, No. 5, p. 2083B-2084B, 1977.
Latitude: N404000; Longitude: W0771000; W0783500
Descriptors: Pennsylvania; ground water; sedimentary rocks; engineering geology; hydrogeology; surveys; carbonate rocks; properties; materials; Benckentown Group; Stonehenge Limestone; Nittany Dolomite; Axemian Limestone; Bellefonte Dolomite; Centre County; United States; central; Centre County; aquifers; aquifer properties; multivariate analysis; statistical analysis; porosity; permeability; chemical properties; petrography; Ordovician; Palaeozoic; Lower Ordovician; materials; properties
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

878028 78-10595

Interaction between two parallel tunnels

Gharousi, J.; Ranken, R. E.
Univ. Ill. Urbana-Champaign, Dep. Civ. Eng., Urbana, Ill.,
USA
Int. J. Numer. Anal. Methods Geomech. 1: 1, 75-103p.,
1977
ISSN: 0363-9061 14 REFS.
Subfile B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

illus., tables

Descriptors: tunnels; land subsidence; rock mechanics; experimental studies; settlement; plasticity; finite element analysis; construction; design; stress fields; stress; excavations; shaft pillars; bedrock; statistical methods; parallel tunnels; loading; two-dimensional models; models; strain; tunnel liners; displacements
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

877782 78-10774

Numerical performance of some finite element schemes for analysis of seepage in porous elastic media

Sandhu, R. S.; Liu, K.; Singh, K. J.
Ohio State Univ., Dep. Civ. Eng., Columbus, Ohio, USA
Int. J. Numer. Anal. Methods Geomech. 1: 2, 177-194p.,
1977
ISSN: 0363-9061 15 REFS.
Subfile B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

illus., sects., tables

Descriptors: soil mechanics; automatic data processing; techniques; engineering geology; computer programs; seepage; elastic materials; porous materials; finite element analysis; statistical methods; pore pressure; mathematical models; models; properties; consolidation; settlement; stress; one-dimensional models; infiltration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

877781 78-10760

Transmitting boundaries: a comparison

Roeset, J. M.; Ettouney, M. M.
Mass. Inst. Technol., Dep. Civ. Eng., Cambridge, Mass., USA;
Stone & Webster Eng. Corp.
Int. J. Numer. Anal. Methods Geomech. 1: 2, 151-176p.,
1977
ISSN: 0363-9061 10 REFS.
Subfile B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: soil mechanics; nuclear facilities; foundations; applications; structures; seismic risk; boundaries; ground motion; strain; one-dimensional models; models; finite element analysis; statistical methods; shear strength; techniques
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

877780 78-10507

Methods for the numerical solution of the equations of viscoelasticity

Booker, J. R.; Small, J. C.
Int. J. Numer. Anal. Methods Geomech. 1: 2, 139-150p.,
1977
ISSN: 0363-9061 13 REFS.
Subfile B

Country of Publ.: International
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

illus., table

Descriptors: engineering geology; construction materials; foundations; materials; properties; creep; mechanical properties; materials; properties; loading; viscous materials; elastic materials; anisotropic materials; Poisson's ratio; elastic constants; finite element analysis; statistical methods; arrays; Volterra equations; Laplace transforms; bulk modulus
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

877777 78-10527

Finite deformation of an elasto-plastic soil

Carter, J. P.; Booker, J. R.; Davis, E. H.

Int. J. Numer. Anal. Methods Geomech. 1: 1, 25-43p., 1977

ISSN 0363-9061 32 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

Descriptors: soil mechanics; foundations; deformation; design; elastic materials; embankments; elasticity; mathematical methods; plasticity; plastic materials; strain; failure; Hooke's law; finite element analysis; statistical methods; examples; loading; cohesive materials
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

877776 78-10553

Consolidation analysis of layered anisotropic foundations

Desai, C. S.; Saxena, S. K.

Int. J. Numer. Anal. Methods Geomech. 1: 1, 5-23p., 1977

ISSN 0363-9061 13 REFS.

Subfile: B

Country of Publ.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

Descriptors: foundations; soil mechanics; land subsidence; geologic hazards; settlement; consolidation; buildings; compaction; anisotropic media; layered media; finite element analysis; statistical methods; Poisson's ratio; elastic constants; Darcy's law; pore water; Hooke's law; waves; planar bedding structures; sedimentary structures; examples; loading; elastic moduli; permeability; sand; clastic sediments; clay; drainage; pore pressure; flexible materials
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

876669 78-10827

Univariate and multivariate statistical analysis of West Virginia landslide data

Woodfork, L. D.; Lessing, P.

W. Va. Geol. Econ. Surv., Morgantown, W. Va., USA
Geol. Soc. Am., Abstr. Programs 9: 3, 332p., 1977

CODE: GAAPBC

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

Latitude: N371500; Longitude: W0774500; W0823000

Descriptors: West Virginia; engineering geology; slope stability; United States; landslides; statistical analysis; univariate analysis; multivariate analysis; failure

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

875390 78-06684

Mass movement on spoil outcrops of contour surface-mines, North-central West Virginia

Heger, J. P.

West Virginia Univ., Morgantown, W. Va., USA

262p., 1977

Subfile: B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Language: English

Diss. Abstr. Int., Vol. 38, No. 4, p. 1622B, 1977.

Latitude: N383000; Longitude: W0793000; W0813000

Descriptors: West Virginia; mining geology; engineering geology; evaluation; Harrison County; slope stability; United States; north-central; mass movements; spoils; strip mining; contour mining; statistical analysis; failure

; coal mines; landslides; geologic hazards

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

873114 78-06816

Soil-structure interaction for nuclear power plants

Hall, J. R., Jr.; Kissenfrenny, J. F.

E. D'Appolonia Consult. Eng. Inc., Brussels, BEL

Symposium on earthquake risk for nuclear power plants, Walferdange, Luxembourg, Oct. 20-22, 1975

North. Meteorol. Inst., Publ. 153, 113-119p., 1976

7 REFS.

Subfile: B

Country of Publ.: Netherlands

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC

Language: English

Descriptors: nuclear facilities; seismology; soil mechanics; seismicity; soil dynamics; earthquakes; seismic risk; models; mathematical models; lumped parameter analysis; finite element analysis; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

873106 78-06879

Seismic risk maps of Switzerland; description of the probabilistic method and discussion of some input parameters

Mayer-Rosa, D.; Merz, H. A.
Symposium on earthquake risk for nuclear power plants.
Walferdange, Luxembourg. Oct 20-22, 1975
Neth., Meteorol. Inst., Publ. 153. 45-51p., 1976
10 REFS

Subfile B
Country of Publ.: Netherlands
Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages: English

Latitude: N454500; N474500 Longitude: E0103000; E0055000
Descriptors: Switzerland; earthquakes; nuclear facilities
; engineering geology; magnitude; maps; intensity;
seismic risk; Europe; seismicity; models; probability;
frequency; acceleration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

873105 78-06695

Probability distribution of earthquake accelerations for sites in western Germany

Ahmer, L.; Rosenhauer, W.
Symposium on earthquake risk for nuclear power plants.
Walferdange, Luxembourg. Oct. 20-22, 1975
Neth., Meteorol. Inst., Publ. 153. 42-43p., 1976
5 REFS

Subfile B
Country of Publ.: Netherlands
Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages: English

Latitude: N490000; N520000 Longitude: E0100000; E0030000
Descriptors: West Germany; automatic data processing;
nuclear facilities; engineering geology; earthquakes;
seismic risk; Germany; Europe; seismicity; magnitude;
acceleration; distribution; models; maps; seismicity maps
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

873103 78-07017

The UK approach to hazard assessment

Willmore, P. L.; Burton, P. W.
Symposium on earthquake risk for nuclear power plants.
Walferdange, Luxembourg. Oct. 20-22, 1975
Neth., Meteorol. Inst., Publ. 153. 35-37p., 1976
3 REFS

Subfile B
Country of Publ.: Netherlands

Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages: English

Latitude: N500000; N610000 Longitude: E0013000; W0080000
Descriptors: United Kingdom; geologic hazards; nuclear
facilities; engineering geology; earthquakes; magnitude;
seismic risk; Europe; intensity; epicenters; methods;
mathematical methods; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

873102 78-06966

Probability model for peak ground accelerations in Sweden

Slunga, R.
Symposium on earthquake risk for nuclear power plants.
Walferdange, Luxembourg. Oct. 20-22, 1975
Neth., Meteorol. Inst., Publ. 153. 27-34p., 1976
7 REFS

Subfile B
Country of Publ.: Netherlands
Doc Type SERIAL; CONFERENCE PUBLICATION Bibliographic
Level ANALYTIC
Languages: English

Latitude: N551500; N691500 Longitude: E0241500; E0110000
Descriptors: Sweden; nuclear facilities; engineering
geology; earthquakes; seismic risk; Europe; acceleration;
magnitude; focus; ground motion; models; mathematical
models; epicenters; frequency; distribution; Stockholm;
Goteborg; Malmo
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

871418 78-02891

Calculated and observed subsidence and horizontal movements at Baldwin Hills, California

Lee, K. C.
Univ. Calif., Sch. Eng. Appl. Sci., Los Angeles, Calif., USA
Second International Symposium on land subsidence,
Anaheim, Calif., United States, Dec. 13-17, 1976
Int. Symp. Land Subsidence, Symp. Program 2, unpaginated
p., 1976

Subfile: B
Country of Pub.: International
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Latitude: N340000; N343000 Longitude: W1174500; W1183000
Descriptors: California; engineering geology; Los
Angeles County; land subsidence; United States; geologic
hazards; dams; failure; causes; petroleum; production;
finite element analysis; statistical methods; Baldwin Hills
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

869698 78-02921

Earthquake parameters from extreme value statistics

Makropoulos, C.; Burton, P. W.
U.K. Geophysical Assembly, Edinburgh, United Kingdom,
April 12-15, 1977
R. Astron. Soc., Geophys. J. 49: 1, 307p., 1977
CODEN: GEOPJN

Subfile: B
Country of Pub.: United Kingdom
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Latitude: S650000; N650000 Longitude: W0700000; E1100000
Descriptors: Pacific region; Greece; seismology;
engineering geology; earthquakes; geologic hazards;
Circum-Pacific region; Europe; magnitude; statistical
analysis; seismic risk
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

869301 78-03019

Design construction and performance of a slurry trench wall next to foundations

Rosenbloom, P.; St. Arnaud, G.; Journeaux, N. L.; Vallee, H.
Contrôle Techn. Appl. Limites, Montreal, CAN.; Regis Trudeau
Assoc.

Slope stability; 29th Canadian geotechnical conference;
October 13-16, 1978; Bayshore Inn, Vancouver, B.C.
Campanella, D. (chairperson)
Slope stability; 29th Canadian geotechnical conference.

Vancouver, B.C., Canada, Oct. 13-16, 1976
Pub.: Can. Geotech. Soc.
IX: 1: IX: 25p., 1976
11 REFS.

Subfile: B
Country of Pub.: Canada
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English Summary Languages: French
illus., tables
Latitude: N453000; N453000 Longitude: W0733600; W0733600
Descriptors: Quebec; engineering geology; slope
stability; excavations; foundations; loading; settlement;
Canada; design; construction; finite element analysis;
statistical methods; till; clastic sediments; Montreal
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

869299 78-02697

Effective stress finite element slope analysis

Byrne, P. M.

Slope stability; 29th Canadian geotechnical conference;
October 13-16, 1978; Bayshore Inn, Vancouver, B.C.
Campanella, D. (chairperson)
Slope stability; 29th Canadian geotechnical conference.
Vancouver, B.C., Canada, Oct. 13-16, 1976
Pub.: Can. Geotech. Soc.
VIII: 35-VIII: 55p., 1976
12 REFS.

Subfile: B
Country of Pub.: Canada
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English Summary Languages: French
illus.
Descriptors: slope stability; failure; shear stress;
strain; loading; soil mechanics; consolidation; compaction
; finite element analysis; statistical methods; layered
media; erosion; excavations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

96925 78-03038

Einfluss der Sprengtechnik und der Lagerstattenstruktur auf die Staerke und Ausbreitung von Bodenerschuetterungen bei Gewinnsprengeungen
Influence of the blasting technique and the structure of the deposit on the intensity and distribution of earthquakes caused by blasting

Schubart, H.; Thiemel, E.
 Geol. Jahrb., Reihe E, 6, 11-30p., 1976
 CODEN: GJPEAD 33 REFS.

Subfile: B
 Country of Publ.: Germany, Federal Republic of
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: German Summary Languages: English
 illus., tables

Descriptors: *West Germany; *geologic hazards; *earthquakes; *engineering geology; *causes; *explosions; Germany; Europe; mining geology; quarries; distribution; Rhine-Westphalian Basin; Dornop; statistical analysis; limestone; carbonate rocks
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

868702 78-02881

Algunas relaciones macrosismicas para la evaluacion del riesgo sismico en Chile
Microseismic relations for the seismic risk evaluation in Chile

Labbe, J. C.; Goldmark, A.; Saragotti, G. R.
 Segundas jornadas Chilenas de sismologia e ingenieria antisismica, Santiago, Chile, July 26-30, 1976
 Jornadas Chil. Sismol. Ing. Antisismica, [Publ.] 2, Volume II, F7.1 F7.14p., 1976

21 REFS.

Subfile: B
 Country of Publ.: Chile
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: Spanish

illus., tables
 Latitude: S560000; S174500 Longitude: W0670000; W0760000
 Descriptors: *Chile; *seismology; *engineering geology; seismicity; *geologic hazards; *microseisms; earthquakes; seismic risk; South America; statistical analysis; magnitude; acceleration; epicenters
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

858590 78-02261

Statistical study of earthquake response spectra

Riddell, R.; Newmark, N. M.
 Univ. Ill., Urbana, Ill., USA
 Segundas jornadas Chilenas de sismologia e ingenieria

antisismica, Santiago, Chile, July 26-30, 1976
 Jornadas Chil. Sismol. Ing. Antisismica, [Publ.] 2, Volume II, B2.1-B2.15p., 1976

11 REFS.

Subfile: B
 Country of Publ.: Chile
 Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
 Languages: English
 Note: With discussion, illus., tables
 Descriptors: *seismology; *earthquakes; ground motion; amplitude; spectra; velocity; acceleration; statistical analysis; engineering geology
 Section Headings: 19 (GEOPHYSICS, SEISMOLOGY)

867606 77-47410

The behaviour of clays containing pre-existing discontinuities

Williams, A. A. R.
 Univ. of Witwatersrand, ZAF
 Unpublishedp., 1976

Subfile: B

Degree Level: Doctoral
 Country of Publ.: South Africa
 Doc Type: THESES Bibliographic Level: MONOGRAPHIC
 Languages: English
 Diss. Abstr. Int., Vol. 38, No. 2, p. 821-822B, 1977.
 Latitude: S350000; S220000 Longitude: E030000; E0160000
 Descriptors: *South Africa; *engineering geology; soil mechanics; clays; behavior; excavations; monitoring; field studies; statistical analysis; automatic data processing; Africa
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

867576 77 47452

Geomorphology and hydrology of selected midwestern streams

Filhar, D. E.
Purdue Univ., West Lafayette, Indiana, USA
408p., 1976
Subfile B

Degree Level: Doctoral
Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Language: English

Diss. Abstr. Int., Vol. 38, No. 2, p. 556B 557B, 1977.

Latitude: N370000; Longitude: W0850000, W1023000
Descriptors: Indiana; geomorphology; Illinois; Kansas;
hydrology; fluvial features; rivers and streams;
regional; United States; flow; floods; discharge;
channels; channel geometry; drainage patterns; statistical
analysis; engineering geology; streams; statistical
meanders; field studies
Section Headings: 23 (SURFICIAL GEOLOGY, GEOMORPHOLOGY)

867529 77 47056

Engineering evaluation of seabed sediments by cluster analysis

Fenness, B. J.; Gubitt, J. J.; McEann, D. M.; McQuillan, R.
25th International geological congress, Sydney, Australia,
Aug. 12-24, 1976

Int. Geol. Congr. Abstr. Congr. Geol. Int., Reunions 25,
Vol. 2, Sect. 16E, Mathematical geology, 631-632p., 1976

COPIES: 1000

Subfile B

Country of Publ.: Various

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

Descriptors: engineering geology; materials; properties;
sediments; marine environment; evaluation; statistical
analysis; cluster analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

865466 77 47226

**Prüfmethoden der mechanischen Eigenschaften von
verschiedenen Sanden
Testing the mechanical properties of sand**

Mikulski, J.
12th Conference on Silicate Industry and Silicate Science,
Budapest, Hungary, June 6-11, 1977

Conf. Silic. Ind. Silic. Sci., Proc. 12, Part 2, 869-878
p., 1977

COPIES: 1000

Subfile B

Country of Publ.: Hungary

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Language: German Summary Language: Hungarian

Descriptors: gravel; engineering geology; resources;
properties; materials; grain size; shape; strength;
statistical analysis; experimental studies; sediments; sand
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

865028 77-46987

Statistical variation of the compliance of coal

Atkinson, R. H.; Ko, H.-Y.

Atkinson-Noland & Assoc., Boulder, Colo., USA; Univ. Colo.,
Second International Conference on numerical methods in
geomechanics, Blacksburg, Va., United States, June 20-25,
1976

Int. Conf. Numer. Methods Geomech., [Proc.] 2, Vol. 1,
367-380p., 1976

11 REFS.

Subfile B

Country of Publ.: International

Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC

Language: English

illus., tables

Latitude: N373000; Longitude: W0884500; W0891500
Descriptors: engineering geology; Illinois; materials;
properties; Franklin County; coal; compliance; pressure;
variations; statistical analysis; Monte Carlo analysis;
mathematical models; United States; Old Ben Mine No. 21
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

864664 77-47062

Rezultaty ispol'zovaniya korrelyatsionnogo i regressionnogo analizov dlya opredeleniya faktorov, vliyayushchikh na velichinu pererabotki beregov Volgogradskogo vodokhranilishcha
Results of the application of correlation and regression analyses to the determination of factors influencing the reworking of the shores of the Volgograd water reservoir

Dmitriyev, V. V.
Vyssh. Uchenye Zaved. Izv. Geol. Razved. 8, 112-117p., 1975

COJEN IVUGAF

Subfile B

Country of Publ.: Union of Soviet Socialist Republics

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: Russian

Tables

Latitude: N504000; Longitude: E0452500; E0422500

Descriptors: USSR; engineering geology; reservoirs; shorelines; Volgograd Reservoir; surface reservoirs; erosion; statistical analysis; correlation coefficient

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

864618 77-47233

A Bayesian approach to seismic hazard mapping: development of stable design parameters

Morgan, C. P.

Stanford Univ., Stanford, Calif., USA

3-REFERENCE, 1977

Subfile B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Language: English

Diss. Abstr. Int., Vol. 37, No. 12, Part 1, p. 6247B, 1977.

Latitude: N100000; Longitude: W0874000

Descriptors: Nicaragua; engineering geology; earthquakes; environmental geology; geologic hazards; Central America; mapping; statistical methods; seismic risk; Bayesian functions

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

864617 77-47151

Probabilistic hazard mapping: development of site dependent seismic load parameters

Kiremidjian, A. S.

Stanford Univ., Stanford, Calif., USA

233p., 1977

Subfile B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Language: English
Diss. Abstr. Int., Vol. 37, No. 12, Part 1, p. 6247B, 1977.
Latitude: N323000; Longitude: W1243000
Descriptors: California; engineering geology; earthquakes; environmental geology; geologic hazards; United States; Los Angeles County; San Francisco County; regional; Los Angeles; San Francisco; seismic risk; mapping; statistical methods; probability
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

864091 77-48165

Production statistics and engineering data, oil in North Dakota; second half of 1976

North Dakota Geological Survey, Grand Forks, N.D., USA

Publ.: N.D. Geol. Surv.

267p., 1977

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: MONOGRAPHIC

Language: English

Tables

Latitude: N455500; Longitude: W0963000; W1040000

Descriptors: North Dakota; petroleum; economic geology; United States; engineering geology; production; data; 1976

Section Headings: 29 (ECONOMIC GEOLOGY, ENERGY SOURCES)

Run-sums of annual flow series

Sen, Z.

J. Hydrol. 35, 3-4, 311-324p., 1977

COJEN JIYDA7

Subfile B

Country of Publ.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Language: English

Tables

Descriptors: engineering geology; hydrology; reservoirs; methods; surface reservoirs; statistical methods; water; flow; systems; design

Section Headings: 21 (HYDROLOGY AND HYDROLOGY)

Asymptotic distribution of maximum deficit for linearly dependent inflows in full flow regulation

Murienja, K. N. ; Yevjevich, V.
Eng. Consult. Inc., Denver, Colo., USA, Colo. State Univ.,
J. Hydr., 35, 3-4, 209-209p, 1977
CODEN JHROD7
Subfile B
Country of Publ. International
Doc. Type SERIAL Bibliographic Level ANALYTIC
Languages English
illus.
Descriptors: engineering geology; hydrology; reservoirs;
methods; surface reservoirs; water; inflow; storage;
statistical methods; stochastic processes; flow; models;
mathematical models
Section Headings 21 (HYDROGEOLOGY AND HYDROLOGY)

862241 77-43010

**Raschet povtoryayemosti i aktivnosti opolznevykh protsessov
Calculation of recurrence and intensity of landslide
processes**

Kuchuk, V. K.
Sov. Geol., 5, 142-149p, 1975
CODEN SVGLA2 4 REFS
Subfile B
Country of Publ. Union of Soviet Socialist Republics
Doc. Type SERIAL Bibliographic Level ANALYTIC
Languages Russian
Descriptors: engineering geology; geomorphology;
geologic hazards; mass movements; landslides; recurrence;
intensity; prediction; statistical methods
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

860923 77-42969

Earthquake injuries related to housing in a Guatemalan village

Glaser, P. L. ; Urrutia, J. J. ; Garcia, B. ; Rizzo, L. ; Guevara,
C. ; Smith, H.
Mount Sinai Sch. Med., Dep. Med., New York, N.Y., USA
Science (AAAS), 197, 4704, 638-643p, 1977
CODEN SCIEAS 14 REFS
Subfile B
Country of Publ. United States
Doc. Type SERIAL Bibliographic Level ANALYTIC
Languages English
illus.: tables; sketch map
Latitude N140000, Longitude W0860000, W0820000
Descriptors: Guatemala; engineering geology; earthquakes;
environmental geology; Central America; geologic hazards
Guatemala; Mayan (Caucas); buildings; structures; design;
construction; materials; damage; effects; injuries;

Statistical analysis; 1976; prevention; human ecology
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

860851 77-43019

Application of linear statistical models of earthquake magnitude versus fault length in estimating maximum expectable earthquakes

Mark, R. K.
U. S. Geol. Surv., Open-File Rep., 77-549, 15p., 1977
CODEN XGRDAG 9 REFS
Subfile B
Country of Publ. United States
Doc. Type SERIAL Bibliographic Level MONOGRAPHIC
Languages English
illus.
Descriptors: engineering geology; earthquakes; seismic risk; seismicity; estimation; statistical methods;
magnitude; faults; length
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

858056 77-38615

Mean densities of pre-Devonian sedimentary rocks in Poland and their depth dependence

Dabrowski, A.
Colloquium on petrophysical properties of rocks, Aarhus, Denmark, Oct. 29-31, 1974
Pure Appl. Geophys., 114, 2, Selected topics in petrophysics 251-262p., 1976
CODEN PAGXAV 3 REFS.
Subfile B
Country of Publ. Switzerland
Doc. Type SERIAL; CONFERENCE PUBLICATION Bibliographic Level ANALYTIC
Languages English
illus.: tables

Latitude N490000, N550000 Longitude E0240000, E0141500
Descriptors: Poland; engineering geology; Paleozoic; tectonics; materials; properties; Europe; vertical tectonics; sedimentary rocks; regional; density; depth; data; statistical analysis; applications; uplifts; displacements; estimation; samples; Cambrian; Ordovician; Silurian
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

AD-A136 355

COMPENDIUM OF ABSTRACTS ON STATISTICAL APPLICATIONS IN
GEOTECHNICAL ENGIN..(U) ARMY ENGINEER WATERWAYS
EXPERIMENT STATION VICKSBURG MS GEOTE..

6/6

UNCLASSIFIED

M E HYNES-GRIFFIN ET AL. SEP 83

F/G 13/2

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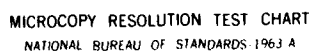
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963 A

857173 77-38688

Probabilistic evaluation of liquefaction of sand under earthquake motions

Haider, A.
Univ. of Illinois, Urbana, Ill., USA
25p., 1976
Subfile: B
Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 37, No. 10, p. 5247B, 1977.
Descriptors: engineering geology; earthquakes; sand; liquefaction; probability; statistical methods; soil mechanics
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

856644 77-38775

Relationship between earthquake damage of existing wooden houses and seismic intensities

Kuribayashi, E.; Hadate, T.
Eight joint panel conference of the U. S.-Japan cooperative program in natural resources. Gaithersburg, Md., United States, May 18-21, 1976
U. S. Natl. Bur. Stand., Spec. Publ. 477, IV.1-IV.17p., 1977
CODEN: XNBSAV 11 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., sketch maps
Latitude: N370000 Longitude: E1400000; E1300000
Descriptors: Japan; engineering geology; earthquakes; Asia; south; Fukui; Isuanto-Oki; Kyushu; seismicity; epicenters; magnitude; intensity; damage; buildings; wooden houses; quantitative analysis; statistical analysis; relation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

856630 77-38703

The regional distribution of the earthquake danger in Japan

Iattori, S.; Kitagawa, Y.; Santo, T.
Seventh joint panel conference of the U. S.-Japan cooperative program in natural resources. Tokyo, Japan, May 20-23, 1975
U. S. Natl. Bur. Stand., Spec. Publ. 470, III.1-III.17p., 1977
CODEN: XNBSAV 6 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., table, sketch maps
Latitude: N300000 Longitude: E1400000; E1290000
Descriptors: Japan; earthquakes; engineering geology; seismology; Asia; regional; distribution; mapping; amplitude; frequency; causes; effects; displacements; statistical analysis; seismic risk
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

856445 77-38618

Site-dependent seismic response spectra for soft sites

Dalai, J. S.; Seed, H. B.; Wu, D.-L.
United Eng. Constr., Inc., Phila., Pa., USA; Univ. Calif., Berkeley
Am. Soc. Civ. Eng., Proc., J. Power Div. 103: P01, 15-25 p., 1977
12 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., table
Descriptors: engineering geology; soil mechanics; soft materials; seismic response; statistical analysis; earthquakes; seismic risk; site exploration; design; nuclear facilities; power plants
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

856006 77-38872

Computer analysis of flat-slab type mat foundations using finite difference method
Paramassivam, P.

Analysis of soil behaviour and its application to geotechnical structures; proceedings of the technical session of the symposium held at the University of New South Wales, Australia; July 14-18, 1978

Vallappan, S. (EDITOR); Main, S. (EDITOR); Lee, I. K. (EDITOR)
Analysis of soil behaviour and its application to geotechnical structures. Kensington, N.S.W., Australia, July, 14-18, 1975
Publ: Unisearch Ltd.
99-112p., 1977
6 REFS.

Subfile: B
Country of Publ.: Australia
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

illus., table
Descriptors: engineering geology; automatic data processing; foundations; soil mechanics; shear stress; programs; statistical analysis; finite difference method
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

855341 77-35256

Earthquake analysis of arch dam-foundation systems

Mojtahedi, S.
Univ. of California, Berkeley, Berkeley, Calif., USA
136p., 1976
Subfile: B

Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English

Diss. Abstr. Int., Vol. 37, No. 9, p. 4588B, 1977.
Descriptors: engineering geology; earthquakes; foundations; structures; dams; arch dams; systems; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

853855 77-35304

Prediction of littoral drift for lakes and bays from wind observations

Rubin, M.; Walton, T. L., Jr.
Univ. Fla., Civ. Eng. Dep., Gainesville, Fla., USA
Southeast. Geol., 18: 2, 119-127p., 1976
CITEN: SDGEAY 13 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

illus., sketch map
Latitude: N301500; N303000 Longitude: W0860000; W0864500
Descriptors: Florida; engineering geology; shorelines; Okaloosa County; Walton County; west; Choctawhatchee Bay; sedimentation; beaches; littoral drift; changes; prediction; wind; statistical analysis; applications; lakes; bays; United States
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

853399 77-35299

Optimum seismic design and research of single-degree systems
Rosenblueth, E.

Structural and geotechnical mechanics

Hall, W. J. (EDITOR)
Structural and geotechnical mechanics, Urbana, Ill., United States, Oct. 2-3, 1975
Publ: Prentice-Hall, Inc.
403-419p., 1977
7 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English

Note: With appendices, illus., tables
Descriptors: engineering geology; earthquakes; structures; design; methods; mathematical methods; probability
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

852974 77-35099

Investigation and statistical analysis of the geotechnical properties of coal mine refuse

Chen, C. Y.
Univ. of Pittsburgh, Pittsburgh, Pa., USA
210p., 1976
Subfile: B
Degree Level: Doctoral
Country of Publ.: United States
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 37, no. 8, p. 4078B-4079B, 1977.
Descriptors: engineering geology; waste disposal; solid waste; engineering properties; statistical analysis; coal mines; mining geology
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

852478 77-35076

Permeability tests for hydrodynamic simulation model of a rock mass in the foundation of a dam; case study of the Grancarevo Dam

Borell, M.; Milivojevic, M.
Karst hydrology and water resources; proceedings of the United States-Yugoslavian symposium, Dubrovnik, June 2-7, 1978; Vol. 2, Karst water resources
Yevjevich, V. (EDITOR)
United States-Yugoslavian symposium on karst hydrology and water resources, Dubrovnik, Yugoslavia, June 2-7, 1975
Publ.: Water Resour. Publ.
575-608p., 1976
11 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
Note: With discussion, illus., sect., geo., sketch map
Latitude: N420000; Longitude: E0200000; E0180000
Descriptors: Yugoslavia; engineering geology; foundations; Grancarevo Dam; dams; rocks; properties; permeability; models; mathematical models; hydrodynamics; statistical analysis; factors; piezometry; discharge; pump tests; tracer experiments; Europe
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

852097 77-35327

**Eastern Siberia
Solov'nikov, V. P.
Seismic zoning of the USSR**

Medvedev, S. V. (EDITOR)
Publ.: Keter Publ. House Jerusalem, Ltd.
393-409p., 1976
Subfile: B
Country of Publ.: Israel
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
Illus., tables, geol. sketch map
Latitude: N510000; Longitude: E1230000; E0900000
Descriptors: seismology; maps; USSR; engineering geology; seismicity; earthquakes; epicenters; frequency; magnitude; intensity; neotectonics; zoning; statistical analysis; Siberia; Baikal; Kirensk
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

850943 77-31254

Design

Whitman, R. V.; Cornell, C. A.
Mass. Inst. Technol., Dep. Civ. Eng., Cambridge, Mass., USA

Seismic risk and engineering decisions

Lonnitz, C. (EDITOR); Rosenblueth, E. (EDITOR)
Publ.: Elsevier Sci. Publ. Co.
339-380p., 1976
31 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
Illus., tables, sketch map
Descriptors: engineering geology; earthquakes; seismic risk; site exploration; structures; design; statistical analysis; probability; examples
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

850918 77-31238

Application of 'inite element method to soil deformation
Vallippan, S.

Soil mechanics; recent developments
Vallippan, S. (EDITOR); Main, S. (EDITOR); Lee, I. K. (EDITOR)
Soil mechanics; recent developments, Kensington, N.S.W.,
Australia, July 14-18, 1975
Publ: Univ. N.S.W.
113-142p., 1975
67 REFS.

Subfile: B
Country of Publ.: Australia
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.

Descriptors: 'engineering geology; 'mathematical geology;
soil mechanics; principles; deformation; plasticity;
creep; applications; statistical analysis; finite element
analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

850322 77-29189

Sound-velocity characteristics of sediment from the eastern
South American margin

Houtz, R. E.
LaMont-Doherty Geol. Obs., Palisades, N.Y., USA
Geol. Soc. Am., Bull. 88: 5, 720-722p., 1977
CODEN: BUGCMA; 4 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.; table, sketch map
Latitude: 5650000; N100000 Longitude: W0300000; W0700000
Descriptors: 'Atlantic Ocean; 'sediments; 'engineering
geology; 'oceanography; properties; materials; South
Atlantic; South America; acoustical properties; continental
margin; data; sonobuoys; statistical analysis
Section Headings: 07 (MARINE GEOLOGY AND OCEANOGRAPHY)

849755 77-31040

Damaging earthquake probability studies in the eastern U.S.
and their potential applications to nuclear power plant siting

Chinnery, M. A.
Mass. Inst. Technol., Cambridge, Mass., USA
The Geological Society of America Northeastern Section, 11th
annual meeting, and Southeastern Section, 25th annual meeting,
Arlington, Va., United States, March 25-27, 1976
Geol. Soc. Am., Abstr. Programs 8: 2, 150-151p., 1976

CODEN: GAAPBC

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
Descriptors: 'United States; 'engineering geology; 'nuclear
facilities; east; foundations; geologic hazards; site
exploration; seismicity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

847853 77-31198

Statistical estimation and prediction of avalanche activity
from meteorological data for the Rogers Pass area of British
Columbia

Salway, A. A.
British Columbia
unpaginatedp., 1976
O REFS.

Subfile: B
Degree Level: Doctoral
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 37, No. 7, p. 3324B-3325B, 1977.
Descriptors: 'British Columbia; 'engineering geology;
'environmental geology; slope stability; geologic hazards;
Rogers Pass; avalanches; activity; prediction; models;
meteorology; statistical analysis; Canada
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

847328 77-27112

Opyt ispol'zovaniya analiza glavnykh sostavlyayushchikh pri-
izucheni' inzhenerno-geologicheskoy izmarchivost' gornyykh
porod

The utilization of engineering experiments in the analysis
of the principal components of various rocks
Kolosovskiy, Ye. N.; Serra, Zh.; Sokolova, L. F.
Vyssh. Uchebn. Zaved., Izv., Geol. Razved. 2, 105-110p.,
1975
CODEN: IVUGAF 6 REFS.

Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Russian

illus., sketch map

Descriptors: engineering geology; USSR; materials;
properties; rocks; soils; experimental studies; methods;
graphic display; principal components analysis; Minusinsk
Basin; statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

847179 77-27154

Prediction of the transition probabilities of various alert
stages during rising flood

Nagy, I. V.
Period. Polytech., Civ. Eng. 16: 4, 211-217p., 1972
CODEN: PPCBAD 3 REFS.

Subfile: B
Country of Publ.: Hungary

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: Hungary; engineering geology; hydrology;
neologic hazards; rivers and streams; Tisza River; floods;
protection; stochastic processes; methods; mathematical
methods; probability; Markov processes; Europe; plugging
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

847129 77-27048

Reservoir planning and operation

Fiering, M. B.
Harv. Univ., Cambr., Mass., USA

Stochastic approaches to water resources; Volume II

Shen, H. W. (EDITOR)

Publ.: Privately published

17.1-17.21p., 1976

19 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: engineering geology; mathematical geology;
reservoirs; concepts; surface; water resources; planning;
applications; statistical methods; stochastic processes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

844752 77-26891

Random maze models of flow through porous media

Torelli, L.; Scheidegger, A. E.
Pure Appl. Geophys. 89, 32-44p., 1971
CODEN: PAGVAV 5 REFS.

Subfile: B

Country of Publ.: Switzerland

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: mathematical geology; hydrogeology;
theoretical studies; flow; porous media; models;
stochastic processes; applications; hydrology; hydraulics;
engineering geology; environmental geology; soils;
hydrodynamics; statistical methods
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

844227 77-26993

Civil structures and earthquake safety

Blume, J. A.
John A. Blume and Assoc., San Franc., Calif., USA

Earthquake risk

Publ.: Calif., Jt. Comm. Seism. Saf.
109-115p., 1971

Subfile: B

Country of Publ.: United States

Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

illus., tables
Descriptors: engineering geology; earthquakes; seismic
risk; structures; buildings; damage; evaluation;
statistical analysis; theoretical studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Problems in the establishment of practical safety goals in transportation

Raisbeck, G.
Arthur D. Little, Inc., Camb., Mass., USA

Earthquake risk
Publ.: Calif., Jt. Comm. Seism. Saf.
25-30p., 1971
Subfile: B
Country of Publ.: United States
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: engineering geology ; practice ; safety ;
risk; transportation; evaluation; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

A systematic approach to uncertainty and risk

Brekka, I. T.
Stanford Univ., Stanford, Calif., USA

Earthquake risk
Publ.: Calif., Jt. Comm. Seism. Saf.
19-24p., 1971
Subfile: B
Country of Publ.: United States
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: engineering geology ; earthquakes ; seismic
risk; statistical analysis; probability
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Social benefits vs. risk

Starr, C.
Univ. Calif., Los Ang., Calif., USA

Earthquake risk
Publ.: Calif., Jt. Comm. Seism. Saf.
5-14p., 1971
Subfile: B
Country of Publ.: United States
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
illus., table
Descriptors: engineering geology ; earthquakes ; seismic
risk; statistical analysis; land use; regional planning;
site exploration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

844042 77-25845

Statistical models of flow through porous media

Liao, K. H.; Scheidegger, A. E.
Univ. Ill., Urbana, Ill., USA
Pure Appl. Geophys. 83, 74-81p., 1970
CODEN: PAGYAV 12 REFS.
Subfile: B
Country of Publ.: Switzerland
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.
Descriptors: mathematical geology; ground water ; methods
; hydrodynamics ; statistical methods; models; review;
flow; porous media; applications; hydrogeology;
engineering geology
Section Headings: 15 (MISCELLANEOUS & MATHEMATICAL GEOLOGY)

841304 77-22754

The time of occurrence and the magnitude of the largest aftershock over India

Chaudhury, M. M.; Srivastava, H. N.
Pure Appl. Geophys. 105, 770-780p., 1973
CODEN: PAGYAV 11 REFS.
Subfile: B
Country of Publ.: Switzerland
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables, sketch maps
Descriptors: India; earthquakes ; seismology; Asia ;
regional; 1963-1971; aftershocks; magnitude; occurrence;
time; statistical analysis; applications; engineering
geology
Section Headings: 19 (GEOPHYSICS, SEISMOLOGY)

840752 77-23178

Ground stability problems: to what extent are they responsible for accidents in underground mines?

Job, A. I.; Everett, M. D.
Can. Rock Mech. Symp., Proc. 10, Vol. 1, 55-68p., 1975
CODEN: PCRSBF 6 REFS.

Subfile: B

Country of Publ.: Canada

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *engineering geology; *Quebec; *mining geology
; slope stability; production control; rock falls;
collapse; mines; quarries; accidents; statistical analysis
; 1960-1972; Canada

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

839685 77-23200

Essai methodologique d'utilisation d'un fichier de donnees geotechniques: documentation, cartographie, traitements statistiques

Methodologic study of the utilization of a card-index of engineering geology data: documentation, cartography, statistical analysis

Mahieu, J.-L.

Lab. Ponts Chausees, Bull. Liaison 76, 123-131p., 1975

CODEN: LBLAE 4 REFS.

Subfile: B

Country of Publ.: France

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: French Summary Languages: English

illus.

Descriptors: *France; *engineering geology; *automatic data processing; soil mechanics; Rouen; methods; information systems; data storage; card-index; statistical analysis; graphic display; maps; Europe

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

837357 77-19929

A new method of evaluation for dimension stone from diamond-drill core

Sengupta, M.

Morrison-Knudson Co., Boise, Idaho, USA

Can. Min. Metall. Bull. 68, 759, 65-70p., 1975

CODEN: CMRAZ 11 REFS.

Subfile: B

Country of Publ.: Canada

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *construction materials; *engineering geology

physical properties; materials; Potadam Sandstone; deposits;
durability; statistical analysis; permeability; density;
composition; mineral composition; composition; chemical
stone; Kingston Limestone; absorption; weathering; dimension
Section Headings: 28 (ECONOMIC GEOLOGY, NONMETALS)

836295 77-18337

Statistical seismicity including geologic evidence

Bell, J. M.; Hoffman, R. A.

Converse Davis Dixon Assoc., San Francisco, Calif., USA

Eng. Geol. Soils Eng. Symp., Proc. 14, 105p., 1976

CODEN: EGSSBT 0 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

Descriptors: *seismology; *California; seismicity;
earthquakes; faults; magnitude; statistical analysis;
engineering geology; United States; San Fernando Fault;
Holy Cross Hospital; Newport-Inglewood Fault; Long Beach Harbor

Section Headings: 19 (GEOPHYSICS, SEISMOLOGY)

833297 77-15223

Earthquake hazard in New England

Shakal, A. F.; Toksoz, M. N.

Mass. Inst. Technol., Dep. Earth Planet. Sci., Camb., Mass., USA

Science (AAAS) 195: 4274, 171-173p., 1977

CODEN: SCIEAS 12 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., table, sketch map

Descriptors: *New England; *environmental geology;
earthquakes; *engineering geology; *seismology; geologic
hazards; United States; south; seismicity; data;
1725-1974; statistical analysis; occurrence; estimation

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

831908 77-13951

Considerations for automated digital terrain models with applications in differential photo mapping

Aveni, D. O.

Ohio State: Columbus

208p., 1976

O REFS.

Subfile: B

Degree Level: Doctoral

Doc Type: THESES Bibliographic Level: MONOGRAPHIC

Languages: English

Diss. Abstr. Int., Vol. 37, No. 5, p. 21208, 1976.

Descriptors: 'automatic data processing; 'engineering

photology; 'maps; methods; cartography; photogeology;

mapping; terrain classification; models; programs; ATODTM;

geodesy; statistical methods; terrain; classification;

applications

Section Headings: 14 (AREAL GEOLOGY, MAPS AND CHARTS)

828336 77-11050

Filtering prediction and interpolation in photogrammetry

Rampal, K. K.

Ohio State: Columbus

207p., 1976

O REFS.

Subfile: B

Degree Level: Doctoral

Doc Type: THESES Bibliographic Level: MONOGRAPHIC

Languages: English

Diss. Abstr. Int., Vol. 37, No. 2, p. 6568, 1976.

Descriptors: 'engineering geology; 'geodesy; methods;

geodetic coordinates; photogrammetry; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

827063 77-07141

Analysis of response of large embankments to traveling base motions

Udava, T

California: Berkeley

351p., 1975

Subfile: B

Degree Level: Doctoral

Doc Type: THESES Bibliographic Level: MONOGRAPHIC

Languages: English

Diss. Abstr. Int., Vol. 37, No. 1, p. 3758-3768, 1976.

Descriptors: 'engineering geology; 'automatic data

processing; earthquakes; embankments; dams; earthworks;

response; ground motion; statistical analysis; analysis;

programs; TRIP; TRAVEL

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

827059 77-06948

A line-source model for seismic risk analysis

Der Kiureghian, A.

Illinois: Urbana-Champaign

145p., 1976

Subfile: B

Degree Level: Doctoral

Doc Type: THESES Bibliographic Level: MONOGRAPHIC

Languages: English

Diss. Abstr. Int., Vol. 37, No. 1, p. 3678, 1976.

Descriptors: 'engineering geology; earthquakes; seismic

risk; models; faults; slip; statistical analysis;

applications; United States; California; San Francisco;

West Indies; Puerto Rico; San Juan

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

824445 77-06374

**Kriterien und Möglichkeiten fuer die Speicherung von Gas in Deutschen Erdöl- und Erdgaslagerstätten
Criteria and importance of gas storage in German oil and gas deposits**

Gralla, G.-J.; Luebben, H.

Erdöl Kohle: Ergänzungsband 1975-1976: Vortraege der

3.DGMK-fachgruppentagung. 207-220p., 1975

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: German Summary Languages: English

illus., sketch map

Descriptors: 'engineering geology; 'Germany; reservoirs;

subsurface; gas storage; utilization; permeability;

porosity; analysis; statistical analysis; west

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

824444 77-06987

Aufbau der Salzgesteine des Salzstockes Etzel abgeleitet aus Kernuntersuchungen und Loginterpretation
Structure of the salt of the Etzel salt dome derived from cores and logs

Hentschel, J.; Kleinitz, G. W. 1975-1976: Vortraege der Erdöl Kohle: Ergaenzungsband 185-206p.. 1975
3. DGMK-Fachgruppentagung.

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: German Summary Languages: English

illus.: sketch map
Descriptors: *engineering geology; *Germany; materials; properties; salt; salt domes; solubility; composition; methods; cores; well-logging; analysis; salt tectonics; statistical analysis; applications; reservoirs; subsurface; petroleum; gas storage; Europe; northwest; Wilhelmshaven; Etzel Dome; Lower Saxony

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

823976 77-06790

Regional flood maxima

Carrigan, P. H.
Colorado State: Fort Collins

81p.. 1975

Subfile: B

Degree Level: Doctoral

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Dis. Abstr. Int., vol. 36, No. 12, Part 1, p. 62998. 1976.
Descriptors: *hydrology; *automatic data processing; *engineering geology; rivers and streams; hydrogeology; methods; floods; magnitude; frequency; statistical methods; simulation; computers; models; mathematical models

Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

823813 77-07053

Geomechanical evaluation of the mesotectonic features of the Koteswar Dam site, U. P. and their applications to the calculation of mountain pressures

Narula, P. N.; Shome, S. K.
J. Eng. Geol., 6, 2: Symposium on rock mechanics: Section VIII, 399-408p.. 1971

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus

Descriptors: *India; *fractures; *foliation; *structural analysis; *tectonics; *engineering geology; structural geology; stress; interpretation; structure; dams;

lineation; north; Uttar Pradesh; Koteswar Dam; joints; genesis; stress; statistical analysis; cleavage; faults; fracture zones; applications; site exploration; bedrock; phyllite
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

821976 77-03151

Preliminary empirical model for scaling Fourier amplitude spectra of strong ground acceleration in terms of earthquake magnitude, source-to-station distance, and recording site conditions

Trifunac, M. D.
Calif. Inst. Technol., Earthquake Eng. Res. Lab., Pasadena, Calif., USA
Seismol. Soc. Am., Bull., 66: 4, 1343-1373p.. 1976

CODEN: BSSAAP

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.: tables

Descriptors: *engineering geology; earthquakes; amplitude; acceleration; strong motion; models; statistical analysis; Fourier analysis; regression analysis; magnitude; distance; epicenters; lithology
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

821973 77-03006

A stochastic approach to soil amplification

Faccioli, E.
Seismol. Soc. Am., Bull., 66: 4, 1277-1291p.. 1976

CODEN: BSSAAP

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.: tables

Descriptors: *engineering geology; earthquakes; amplification; soils; ground motion; statistical analysis; stochastic processes; soil mechanics
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

819724 77-02971

Some comments on the association between saturated hydraulic conductivity and texture of Helderess boulder clay

Bonelli, M.

Catena 3: 1. 77-90p.. 1976

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

illus.: tables, sketch map

Descriptors: *engineering geology; *England; materials;

properties; glacial drift; clays; textures; grain size;

effects; hydraulic conductivity; statistical analysis;

Europe; Helderess; northeast; Yorkshire

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

818896 76-45142

Retrospection and prognosis of landslide calamities

Spurel, M.

Cas. Mineral. Geol. 19: 2. 119-134p.. 1974

CODEN: CAPMAX

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Czech

illus.: tables

Descriptors: *Europe; *engineering geology; *planetology;

geologic hazards; concepts; landslides; 1740-1970;

frequency; statistical studies; cycles; relation; solar

activity; planets; revolution; shape; elongation;

interpretation; prediction; 1966-1996; Mercury Planet;

Venus; Mars; Jupiter; Saturn; effects; Earth

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

818592 76-44838

Percolation tests for septic tank suitability in southern

Arizona soils

Barbarick, K. A.; Warrick, A. W.; Post, D. F.

Colo. State Univ., Fort Collins, Colo., USA; Univ. Ariz.,

Tucson, Ariz., United States

J. Soil Water Conserv. 31: 3. 110-112p.. 1976

CODEN: JSWCA3

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

Ariz. Agric. Exp. Pap. No. 249b. illus.: tables

Descriptors: *Arizona; *engineering geology; site

exploration; south; waste disposal; septic tanks; soils;

parameters; relations; percolation; rates; methods;

statistical analysis; United States

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

818075 76-44321

Ein Beitrag zur statistischen Klufuntersuchung
Statistical analysis of joints

Bock, H.

Festschrift: Leopold Mueller-Salzburg zum 85. Geburtstag

Fecker, E. (EDITOR); Gotz, H.-P. (EDITOR); Sauer, G. (EDITOR);

Spaun, G. (EDITOR)

Publ: Privately published

99-111p.. 1974

Subfile: B

Country of Publ.: Germany, Federal Republic of

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: German Summary Languages: English

illus.

Descriptors: *engineering geology; rock mechanics;

fractures; joints; methods; statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

813797 76-40043

Matrix-arithmetical relations in the dimensioning of dams
and in the study of the operation of large lakes

Zsuffa, I.

Inventory control and water storage

Prekopa, A. (EDITOR)

Publ: North Holland Publ. Co.

361-382p.. 1973

Subfile: B

Country of Publ.: Netherlands

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus.: tables

Descriptors: *engineering geology; dams; dimensioning;

storage; lakes; management; mathematical methods; matrices

probability

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

813356 76-39602

Landslide inventory in northern Calabria, southern Italy

Carra, A.; Merenda, L.
Geol. Soc. Am., Bull., 87, 8, 1153-1162p., 1976
CODEN: BUCMAF
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: geol. sketch map
Descriptors: Italy; environmental geology; engineering geology; geologic hazards; slope stability; landslides; south; Calabria; data; statistical analysis; inventory; mapping; applications; land use; soils; conservation; Europe
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

813332 76-39578

Investigation and stability analysis of earth slopes

Kienel, K. J.; Schmidt, M.
Int. Assoc. Eng. Geol., Bull., 9, 57-61p., 1974
CODEN: BIFR86
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus.
Descriptors: engineering geology; slope stability; methods; statistical analysis; errors
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

812629 76-38875

Matematiko-statisticheskoye sopostavleniye granulometricheskogo sostava i predelov konsistentii lessovykh porod rayona Uratyube

Statistical correlation of grain size and consistency classes of loess in the Uratyube area
Chukhvatze, G. Z.; Bayman, E. N. 1974
Uzb. Geol. Zh., 5, 44-46p., 1974
CODEN: UZGZAO
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Russian Summary Languages: Uzbekistan
Descriptors: USSR; engineering geology; materials; properties; loess; Uzbekistan; Uratyube; sediments; grains; size; consistency; statistical studies; correlation coefficient
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Invited contributions

Esteve, L.; Ingles, O. G.; Morse, R. K.

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
661-675p., 1972
Subfile: B
Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
Note: Introductory and closing remarks. illus.
Descriptors: engineering geology; soil mechanics; applications; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809992 76-36238

Estimation of dynamic properties of structures and soils

Vanniaratche, E.; Dobry, R.; Wadera, G.
Mass. Inst. Technol., Camb., Mass., USA

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
639-660p., 1972
Subfile: B
Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
illus.: tables
Descriptors: engineering geology; materials; properties; soils; structures; motion; damping; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809993 76-36239

809981 76-36237

Ocean wave force spectra

Tung, C. C. ; Hsiang, N. E.
N.C. State Univ., Raleigh, N.C., USA

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
619-637p., 1972
Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *engineering geology ; marine installations ;
design: ocean waves ; strength ; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809930 76-36236

Artificial earthquake records of prescribed magnitude and focal distance

Solnes, J.

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
599-618p., 1972
Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *engineering geology ; earthquakes ;
magnitude: ground motion; prediction; experimental studies;
mathematical models; applications; buildings; construction
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809989 76-36235

Application of stochastic processes to partially saturated soils

Koerner, R. M.

Drexel Univ., Dep. Civil Eng., Phila., Pa., USA

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
557-568p., 1972
Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *engineering geology; *soils ; soil mechanics;
engineering properties ; partially saturated; statistical
analysis; stochastic methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809988 76-36234

A stochastic approach to the seismic liquefaction problem

Donovan, N. C.
Dames & Moore, San Franc., Calif., USA

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
513-535p., 1972
Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *engineering geology; *soils ; earthquakes;
engineering properties ; effects; liquefaction;
cohesionless; statistical analysis; stochastic methods;
cohesion; loading
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809987 76-36233

How reliable is the factor of safety in foundation engineering?

Singh, A.

Univ. Calif., Dep. Civil Eng., Los Ang., Calif., USA

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
389-424p., 1972
Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *engineering geology ; foundations ; design;
safety factor; reliability; soil mechanics; statistical
analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809986 76-36232
Frequency distributions and correlations of soil properties
Schulze, E.

Statistics and probability in civil engineering
Lumb, P. (EDITOR)

Publ: Hong Kong Univ. Press
371-387p., 1972

Subfile: B

Country of Publ.: Hong Kong

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: engineering geology; soils; soil mechanics;
engineering properties; statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809985 76-36231

A probabilistic approach to the correction of soil strength
Nelson, J. D.; Brand, E. W.; Moh, Z.-C.

Statistics and probability in civil engineering
Lumb, P. (EDITOR)

Publ: Hong Kong Univ. Press
357-370p., 1972

Subfile: B

Country of Publ.: Hong Kong

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: engineering geology; soils; soil mechanics;
engineering properties; strength; testing; statistical
analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809984 76-36230

The importance of proper soil units for statistical analysis
Morse, R. K.

Statistics and probability in civil engineering
Lumb, P. (EDITOR)

Publ: Hong Kong Univ. Press
347-355p., 1972

Subfile: B

Country of Publ.: Hong Kong

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

table

Descriptors: engineering geology; soils; soil mechanics;
engineering properties; testing; importance;
classification; applications; statistical analysis

809983 76-36229

Precision and accuracy of soil tests
Lumb, P.

Statistics and probability in civil engineering
Lumb, P. (EDITOR)

Publ: Hong Kong Univ. Press
329-345p., 1972

Subfile: B

Country of Publ.: Hong Kong

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: engineering geology; soils; soil mechanics;
engineering properties; testing; accuracy; precision;
statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809982 76-36228

Statistical analysis of undrained strength of soft Bangkok
clay

Ladd, C. C.; Moh, Z.-C.; Gifford, D. G.

Mass. Inst. Technol., Camb., Mass., USA; Haley & Aldrick,
Inc., United States

Statistics and probability in civil engineering
Lumb, P. (EDITOR)

Publ: Hong Kong Univ. Press
313-328p., 1972

Subfile: B

Country of Publ.: Hong Kong

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus., tables, sketch map

Descriptors: Thailand; engineering geology; soils;
materials; properties; engineering properties; Bangkok;
clays; undrained; strength; statistical analysis; Asia

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809981 76-36227

Estimation of the mean for soil properties

Kay, J. N.; Krizek, R. J.
Northwest. Univ., Dep. Civil Eng., Evanston, Ill., USA

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
279-286p., 1972

Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *engineering geology; *soils; soil mechanics;
engineering properties; statistical analysis; mean;
estimation

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809980 76-36226

Statistical control in pavement design

Inglis, D. G.

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
267-278p., 1972

Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *engineering geology; *soils; soil mechanics;
engineering properties; plasticity; strength; compaction;
statistical analysis; applications; design; pavements
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809979 76-36225

Statistical evaluation of soils test data

Holtz, R. D.; Krizek, R. J.

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
229-266p., 1972

Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *engineering geology; *soils; soil mechanics;

engineering properties; testing; data; statistical
analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809978 76-36224

**Statistical geotechnical properties of glacial Lake Edmonton
sediments**

Fredlund, D. G.; Dahman, A. E.
R.W. Hardy & Assoc., Vancouver, B.C., CAN

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
203-228p., 1972

Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *Alberta; *engineering geology; *soils;
materials; properties; engineering properties;
south-central; Lake Edmonton; sediments; glacial;
statistical analysis; applications; soil mechanics; Canada
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809977 76-36223

Reliability analysis and design of braced excavation systems

Tang, W. H.; Yuceman, M. S.; Ang, A. H-S
Univ. Ill., Dep. Civil Eng., Urbana, Ill., USA

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ.: Hong Kong Univ. Press
187-202p., 1972

Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *engineering geology; *soils; foundations;
engineering properties; excavations; design; statistical
analysis; soil mechanics; uncertainty; applications
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809976 76-36222

A Bayesian evaluation of information for foundation engineering design

Tang, W. H.
Univ. Ill., Civil Eng., Urbana, Ill., USA

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ. Hong Kong Univ. Press
173-185p., 1972

Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

Descriptors: *engineering geology; *soils; foundations; engineering properties; design; applications; soil mechanics; statistical methods; Bayesian; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809975 76-36221

Risk design of stiffened mats on clay

Lytton, R. L.
Tex. A & M Univ., Dep. Civil Eng., College Station, Tex., USA

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ. Hong Kong Univ. Press
153-171p., 1972

Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

Descriptors: *engineering geology; *soils; foundations; engineering properties; mat foundations; design; applications; statistical methods; soil mechanics; clays; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809974 76-36220

Probability and economical foundations

Costello, J. F.; Laguros, J. G.
Univ. Okla., Norman, Okla., USA

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ. Hong Kong Univ. Press
145-152p., 1972

Subfile: B
Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English
illus., table
Descriptors: *engineering geology; *soils; foundations; engineering properties; soil mechanics; applications; statistical methods; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809973 76-36219

First-order uncertainty analysis of soils deformation and stability

Cornell, C. A.
Mass. Inst. Technol., Dep. Civil Eng., Camb., Mass., USA

Statistics and probability in civil engineering

Lumb, P. (EDITOR)
Publ. Hong Kong Univ. Press
129-144p., 1972

Subfile: B

Country of Publ.: Hong Kong
Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

Descriptors: *engineering geology; *soils; soil mechanics; engineering properties; deformation; stability; foundations; embankments; applications; statistical methods; uncertainty; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809972 76-36218
Statistics and probability in civil engineering
 Lumb, P. (EDITOR)
 First International conference on applications of
 statistics and probability to soil and structural engineering
 HKG., Sept. 13-16, 1971
 Publ. Hong Kong Univ. Press
 675p., 1972
 Subfile: B
 Country of Publ.: Hong Kong
 Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
 Level: MONOGRAPHIC
 Languages: English
 Note: Individual papers within scope of this Bibliography
 are cited under the separate authors, illus., tables
 Descriptors: *symposia; *engineering geology; soil
 mechanics; applications; statistical methods; Hong Kong;
 1971
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

809115 76-35361
Errors in strike and dip measurements
 Cruden, D. M.; Charlesworth, H. A. K.
 Geol. Soc. Am., Bull., 87, 7, 977-980p., 1976
 CODEN: RUGMAF
 Subfile: B
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus., tables
 Descriptors: *structural geology; *engineering geology;
 mathematical analysis; methods; rock mechanics;
 mathematical methods; statistical methods; strike; dip;
 orientation; measurement; errors; field studies; faults;
 fractures; joints; bedding; applications; slope stability;
 examples; North America; Rocky Mountains; Canada
 Section Headings: 16 (STRUCTURAL GEOLOGY)

806464 76-32710
**Analiz pokazateley fizicheskogo sostoyaniya i prochnosti
 lessovykh gruntov territorii Tashkenta metodom matematicheskoy
 statistiki**
 Statistical analysis of indices of physical consistency and
 permeability of loess in Tashkent
 Danilyanov, E. A.
 Urb. Geol. Zh., 2, 59-63p., 1974
 CODEN: UZGZAO
 Subfile: B
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: Russian Summary Languages: Uzbekistan
 tables
 Descriptors: *USSR; *engineering geology; materials;

properties; Uzbekistan; Tashkent; loess; statistical
 studies
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

806431 76-32677
**Analiz nekotorykh pokazateley svoystv prolyuvial'nykh
 lessovykh porod Karshinskoy stepi metodom matematicheskoy
 statistiki**
 Statistical analysis of some indices of properties of
 proluvial loesses in the Karshi Steppe
 Isamatov, Yu. P.
 Urb. Geol. Zh., 1, 55-58p., 1974
 CODEN: UZGZAO
 Subfile: B
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: Russian Summary Languages: Uzbekistan
 illus., table
 Descriptors: *sediments; *USSR; *engineering geology;
 clastics; terrigenous; materials; properties; loess;
 physical properties; Quaternary; Uzbekistan; Karshi Steppe;
 porosity; statistical studies
 Section Headings: 24 (SURFICIAL GEOLOGY, QUATERNARY GEOLOGY)

805826 76-32072
Response of soil-pile systems to seismic waves
 Nair, G. P.
 McMaster
 unpaginatedp., 1975
 Subfile: B
 Degree Level: Doctoral
 Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
 Languages: English
 Diss. Abstr. Int., Vol. 36, No. 9, p. 4613B, 1976.
 Descriptors: *engineering geology; foundations; piles;
 soils; systems; elastic waves; propagation; earthquakes;
 ground motion; statistical analysis; finite element analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

805708 76-31954

Economic revelements for protecting the banks of Maric and Ergene rivers flood canals against wave erosion
Bursalı, S.

Sediment transportation

International symposium on river mechanics; proceedings
Publ: UNESCO, Int. Assoc. Hydrol. Sci., Asian Inst. Technol.
1. 203-212p., 1973

Ed. 4

Subfile: B
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *Turkey; *engineering geology; *experimental studies; *Maritsa River; Ergene River; revetments; models; statistical analysis; wave erosion; flood channels; Middle East
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

804656 76-30902

Site-dependent spectra for earthquake-resistant design

Seed, H. B.; Ugas, C.; Lysmer, J.
Univ. Calif., Dep. Civ. Eng., Berkeley, Calif., USA
Seismol. Soc. Am., Bull. 66: 1, 221-243p., 1976

CODEN: BSSAAP

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables

Descriptors: *engineering geology; *United States; earthquakes; buildings; design; ground motion; spectra; acceleration; dependence; soils; depth; physical properties; statistical methods; west
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

803831 76-30077

Foundation analysis of Auburn damsite

Christiansen, L. M.; Mistry, D. L.; Bowles, G. F.
U. S. Dep. Inter., Denver, Colo., USA

Rock fracture; Vol. 1

Anonymous
Publ: Int. Soc. Rock Mech.
unpaginatedp., 1971

Subfile: B

Country of Publ.: France
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus.

Descriptors: *California; *engineering geology; *dams; foundations; rock mechanics; Sacramento; American River; Auburn Dam; site exploration; stability; loading; modulus; deformation; statistical methods; finite element analysis; United States
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

803828 76-30074

Deformation moduli determined by joint-shear index and shear catalog

Von Thun, J. L.; Tarbox, G. S.
U. S. Dep. Inter., Denver, Colo., USA

Rock fracture; Vol. 1

Anonymous
Publ: Int. Soc. Rock Mech.
unpaginatedp., 1971

Subfile: B

Country of Publ.: France
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus., table

Descriptors: *engineering geology; *California; *rock mechanics; deformation; modulus; joints; fractures; shear; statistical methods; joint-shear index; applications; dams; foundations; United States; Auburn Dam
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

803814 76-30060

Three dimensional analysis of jointed rock slopes
St. John, C. M.

Rock fracture; Vol. 1

Anonymous
Publ: Int. Soc. Rock Mech.
unpaginatedp., 1971

Subfile: B

Country of Publ.: France
Doc Type: BOOK Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus.

Descriptors: *engineering geology; *slope stability; joints; statistical methods; finite element analysis; three-dimensional; deformability; wedges
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

illus., tables
 Descriptors: engineering geology ; rock mechanics ;
 joints: tension; experimental studies; shear strength;
 roughness; dilation; stress; methods; statistical methods;
 applications; slope stability
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

803812 76-30058
**La methode des elements finis, appliquee a la mecanique de
 la fracture**
 The finite element method applied to fracture mechanics
 Winer, P.

Rock fracture; Vol. 1
 Anonymous
 Publ.: Int. Soc. Rock Mech.
 Unpaginatedp., 1971
 Subfile B
 Country of Publ.: France
 Doc Type BOOK Bibliographic Level: ANALYTIC
 Languages: French Summary Languages: English
 illus.
 Descriptors: engineering geology ; rock mechanics ;
 fractures; strength; media; elastic; statistical methods;
 finite element analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

803811 76-30057
Stress distribution in direct shear test samples
 Kutter, H. K.

Rock fracture; Vol. 1
 Anonymous
 Publ.: Int. Soc. Rock Mech.
 Unpaginatedp., 1971
 Subfile B
 Country of Publ.: France
 Doc Type BOOK Bibliographic Level: ANALYTIC
 Languages: English Summary Languages: French
 illus.
 Descriptors: engineering geology ; rock mechanics ;
 stress; distribution; nonuniform; shear plane; statistical
 methods; finite element analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

803792 76-30038
**A relationship between joint roughness and joint shear
 strength**
 Barton, N.

Rock fracture; Vol. 1
 Anonymous
 Publ.: Int. Soc. Rock Mech.
 Unpaginatedp., 1971
 Subfile B
 Country of Publ.: France
 Doc Type BOOK Bibliographic Level: ANALYTIC
 Languages: English Summary Languages: French

803284 76-29530
Stochastic simulation of earthquakes
 Lou, Y.-S.
 Pennsylvania
 271p., 1975
 Subfile B
 Degree Level: Doctoral
 Doc Type THESIS Bibliographic Level: MONOGRAPHIC
 Languages: English
 Diss. Abstr. Int., Vol. 36, No. 5, p. 2382B-2383B, 1975.
 Descriptors: engineering geology ; earthquakes ;
 simulation; statistical methods; stochastic processes;
 models; mathematical models; applications; design;
 criteria; construction
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

802295 76-28541
**Use of quasi-static friction cone penetrometer data to
 predict load capacity of displacement piles**
 Nottingham, L. C.
 Florida
 567p., 1975
 Subfile B
 Degree Level: Doctoral
 Doc Type THESIS Bibliographic Level: MONOGRAPHIC
 Languages: English
 Diss. Abstr. Int., Vol. 36, No. 8, p. 4092B-4093B, 1976.
 Descriptors: engineering geology ; foundations ; piles;
 loading; capacity; prediction; techniques; penetrometers;
 cones; data; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

801135 76-27381
Delimitation probabiliste des zones de karstification
 Statistical delimitation of sinkhole areas
 Thomas, A.
 Sink-holes and subsidence; engineering-geological problems
 related to soluble rocks
 Wolters, R. (chairperson)
 Publ.: Deutsch. Ges. Erd- und Grundbau
 TSK, 1-TSK, 6p., 1973
 Subfile: B
 Country of Publ.: Germany, Federal Republic of
 Doc Type: BOOK Bibliographic Level: ANALYTIC
 Languages: French Summary Languages: English
 illus.
 Descriptors: *France; *engineering geology; land
 subsidence; northeast; Nancy; site exploration; cavities;
 sinkholes; subsurface; location; prediction; statistical
 methods; karst; carbonate rocks; Jurassic; Europe
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

799948 76-26194
Probabilistic approach to one-dimensional consolidation
 settlement
 El-Moursi, H. E.-D. H.
 Northwestern
 197p., 1975
 Subfile: B
 Degree Level: Doctoral
 Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
 Languages: English
 Diss. Abstr. Int., Vol. 36, No. 7, p. 35068, 1976.
 Descriptors: *engineering geology; *soils; soil mechanics;
 engineering properties; consolidation; settlement;
 parameters; statistical analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

800347 76-26593
Methods of investigation in long wall faces
 Josien, J. P.
 Int. J. Rock Mech. Min. Sci. 12: 11. 341-345p., 1975
 CODEN: IJRM2
 Subfile: B
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English
 illus.
 Descriptors: *mining geology; *engineering geology;
 production control; rock mechanics; coal; subsurface;
 controls; structural controls; deformation; surveys;
 methods; statistical methods; practice; Europe; France;
 mines
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

799944 76-26190
Evaluation of in-situ testing methods in soils
 Ahmad, N.
 Louisiana State: Baton Rouge
 400p., 1975
 Subfile: B
 Degree Level: Doctoral
 Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
 Languages: English
 Diss. Abstr. Int., Vol. 36, No. 7, p. 35028, 1976.
 Descriptors: *soils; *engineering geology; engineering
 properties; soil mechanics; testing; methods; in situ;
 sampling; techniques; evaluation; statistical analysis;
 shear strength; experimental studies; field studies;
 comparison
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

800709 76-26455
Tunnel support loading caused by rock failure
 Damm, J. J. K.
 Minnesota
 43p., 1975
 Subfile: B
 Degree Level: Doctoral
 Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
 Languages: English
 Diss. Abstr. Int., Vol. 36, No. 6, p. 29438, 1975.
 Descriptors: *engineering geology; tunnels; rock
 mechanics; excavations; subsurface; systems; support;
 loading; failure; statistical analysis; materials;
 strength

799497 76-24743
The probable earthquake or the hundred year seismic event for the Los Angeles region
Robinson, B. A.
Los Angeles County Gov., Los Angeles, Calif., USA
Assoc. Eng. Geol., Ann. Meet., Program Abstr., 18, 41p., 1975
CODEN: CAGPAV
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Descriptors: California; engineering geology; earthquakes; Los Angeles; Los Angeles region; prediction; magnitude; methods; comparison; statistical analysis; seismic surveys; United States; San Andreas fault
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

798282 76-24528
Some effects of repeated triaxial stresses on road pavement materials
Shackel, B.
New South Wales
Unpaginatedp., 1974
Subfile: B
Degree Level: Doctoral
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 36, No. 2, p. 8398-8408, 1975.
Descriptors: engineering geology; soils; highways; engineering properties; soil mechanics; behavior; loading; stress; compression; triaxial; review; experimental studies; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

799911 76-26157
A statistical study of Koyna aftershocks for the period January 1968-October 1973
Sharma, H. S. S.; Murty, G. S.
Indian J. Meteorol., Hydrol. Geophys., 26: 1, 121-126p., 1975
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Descriptors: India; engineering geology; earthquakes; Asia; Koyna; 1968-1973; aftershocks; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

799306 76-25552
A study of two braced excavations in sands and interbedded stiff clay
O'Rourke, T. D.
Illinois Urbana
273p., 1975
Subfile: B
Degree Level: Doctoral
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 36, No. 5, p. 2383B, 1975.
Descriptors: District of Columbia; engineering geology; soils; soil mechanics; engineering properties; Metro; excavations; sand; clays; stress; displacements; statistical analysis; experimental studies; field studies; construction; subways; United States
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

799282 76-25528
The relationship between littoral drift rate and the longshore component of wave energy flux
Watson, R. L.
Texas Austin
119p., 1975
Subfile: B
Degree Level: Doctoral
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 36, No. 5, p. 2124B, 1975.
Descriptors: engineering geology; sedimentation; marine geology; shorelines; transport; Gulf of Mexico; littoral; prediction; erosion; erosion; tracer analysis; waves; energy; beach; erosion; marine transport; experiments; United States; ocean waves
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

799281 76-24527

Internal erosion of compacted cohesive soil

Landau, H. G., Jr.
Purdue
256p., 1974
Subfile: B
Degree Level: Doctoral
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 36, No. 2, p. 8398, 1975.
Descriptors: engineering geology; materials; properties
; construction materials; soils; clays; erosion; internal;
factors; statistical analysis; experimental studies;
stabilization
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

799277 76-24523

Slope stability problems induced by human modification of the soil covered hill slopes of Oahu, Hawaii

DeSilva, G. L. R.
Hawaii
471p., 1974
Subfile: B
Degree Level: Doctoral
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 36, No. 2, p. 6278, 1975.
Descriptors: Hawaii; engineering geology; slope
stability; landslides; Oahu; problems; factors; man;
soils; statistical methods; models; maps; United States
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

797603 76-23849

Finite element analysis of the surface deformation due to uniform loading on a layer of Gibson soil resting on a smooth rigid base

Simons, N. E.; Rodrigues, J. S. N.
Geotechnique 25: 2, 375-379p., 1975
CODEN: GTNOA8
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., table
Descriptors: engineering geology; soils; soil mechanics;
engineering properties; deformation; surface; horizontal;
vertical; analysis; methods; statistical methods; finite
element analysis; automatic data processing; models; Gibson
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

797591 76-23837

Three-dimensional finite element analysis of vertically loaded pile groups

Ottaviani, M. 25: 2, 159-174p., 1975
Geotechnique
CODEN: GTNOA8
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus.
Descriptors: engineering geology; soils; soil mechanics;
engineering properties; settlement; foundations; piles;
loading; analysis; methods; mathematical methods;
statistical methods; finite element analysis; stress;
elasticity
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

796602 76-22848

Permeability of unconsolidated and consolidated marine sediments, Gulf of Mexico

Bryant, W. R.; Hottel, W.; Trabant, P.
Tex. A&M Univ., Dep. Oceanogr., College Station, Tex., USA
Mar. Geotechnology 1: 1, 1-14p., 1975
CODEN: MGTAY
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: Gulf of Mexico; engineering geology; marine
geology; materials; properties; permeability; sediments;
marine; regional; prediction; experimental studies;
unconsolidated; consolidated; consolidation; statistical
analysis; applications; petroleum; samples; data
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

796000 76-22846

Finite difference solution for drainage of heterogeneous sloping lands

Natur, F. S.
Utah State
180p., 1974
Subfile: B
Degree Level: Doctoral
Doc Type: THESIS Bibliographic Level: MONOGRAPHIC
Languages: English
Diss. Abstr. Int., Vol. 36, No. 1, p. 369B, 1975.
Descriptors: *engineering geology; methods; statistical methods; finite difference; automatic data processing; drainage; slopes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

796446 76-22692

On the value of information to flood frequency analysis

Stack, J. R.; Wallis, J. R.; Matalas, N. C.
U. S. Geol. Surv., Reston, Va., USA; IBM Thomas J. Watson Res. Cent., United States
Water Resour. Res. 11: 5, 629-647p., 1975
CODEN: WRETAQ
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: *engineering geology; *environmental geology; geologic hazards; floods; occurrence; frequency; distribution; theoretical studies; statistical methods; Monte Carlo
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

796184 76-22430

Prognosis of general deformation of natural and artificial alluvial beds composed of non-uniform material

Mitsukubava, T. E.; Magomedova, A. V.
Int. Assoc. Hydraul. Res. Congr., Proc. 14, Vol. 3, Changes in alluvial beds composed of non-uniform material, 25-33p., 1971
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus., tables
Descriptors: *engineering geology; waterways; rivers; alluvium; pavements; scour; mathematical methods; probability; diameter; grains
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

796169 76-22415

Turbulent transfer characteristics of settling phenomenon

Pavazit, M.
Int. Assoc. Hydraul. Res. Congr., Proc. 14, Vol. 1, Transfer problems in liquid flow, 1-8p., 1971
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus.
Descriptors: *engineering geology; *sedimentation; experimental studies; deposition; settling basins; design; turbulence; flow; entrance; grids; screens; roughness; Reynolds number; models; probability; methods; anemometry
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

795904 76-22150

Probability models of wastewater treatment plant operation

Bulkley, J. W.
Univ. Mich., Ann Arbor, Mich., USA
J. Hydraul. 28: 2-4, Control of water resource systems, 317-329p., 1976
CODEN: JHYDA7
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., tables
Descriptors: *Michigan; *engineering geology; *environmental geology; waste disposal; Washtenaw County; Ann Arbor; statistical analysis; models; probability; United States
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

DIALOG File89 GOREF - 61-82/Sep (Copr. American Geological Institute) (Item 1057 of 1356) User 5208 2sep82 2079

; elasticity: anisotropy: cross-anisotropy: statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

795902 76-22148

Optimal operation of the pumping stations in the Kinnereth-Eskol section of the National Water Carrier

Umelin, E.; Shamir, U.
Mekoroth Water Co. Ltd., ISR
J. Hydrol. 28: 2-4: Control of water resource systems, 271-289p., 1976

CODEN: JHYDA7

Subfile: B

Doc Type: SERIAL

Language: English

Illustrus:

Descriptors: Israel; engineering geology; waterways; canals; reservoirs; Sea of Galilee; Zaimon Reservoir; Eskol Canal; Jordan Canal; surface; pumping; instruments; systems; operation; statistical analysis; models; automatic data processing; policy; economics; Middle East
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

795207 76-21453

The specific constrained modulus

Stamatiopoulos, A.; Kotzias, P. C.
Kotzias-Stamatiopoulos, Athens, GRC
Int. Conf. Soil Mech. Found. Eng., Proc. 1-2: Methods of investigating strength and deformability of soils, 397-402 p., 1977

CODEN: PCSMB2

Subfile: B

Doc Type: SERIAL

Language: English

Illustrus: tables

Descriptors: soils; engineering geology; engineering properties; soil mechanics; compressibility; settlement; prediction; constrained modulus; variations; density; dry; experimental studies; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

795202 76-21448

Elastic parameters for soils with cross-anisotropy

Silveira, A.; Souto Silveira, E. B.
Pronon Eng. S. A., Brazil
Int. Conf. Soil Mech. Found. Eng., Proc. 1-2: Methods of investigating strength and deformability of soils, 361-365 p., 1977

CODEN: PCSMB2

Subfile: B

Doc Type: SERIAL

Language: English

Illustrus:

Descriptors: soils; engineering geology; deformation; engineering properties; soil mechanics; theoretical studies

795185 76-21431

A true triaxial apparatus to test rockfills

Marsal, R. J.
Int. Conf. Soil Mech. Found. Eng., Proc. 1-2: Methods of investigating strength and deformability of soils, 259-264 p., 1977

CODEN: PCSMB2

Subfile: B

Doc Type: SERIAL

Language: English

Illustrus:

Descriptors: soils; engineering geology; deformation; engineering properties; soil mechanics; experimental studies; granular; rockfill; stress; strain; friction; resistance; measurement; methods; statistical methods; instruments; theoretical studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

794923 76-21169

Some empirical relationships between drained friction angles, mechanical analyses and Atterberg limits of natural soils at Kainji Dam, Nigeria

Humphreys, J. D.
Mander, Raikes and Marshall, Bristol, GBR
Geotechnique 25: 3, 581-585p., 1975

CODEN: GINQAB

Subfile: B

Doc Type: SERIAL

Language: English

Illustrus:

Descriptors: Nigeria; engineering geology; soils; dams; engineering properties; soil mechanics; Kainji Dam; rockfill; earthfill; shear strength; plasticity; plasticity index; Atterberg limits; statistical analysis; Africa
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

794329 76-20575

Stochastic structure of the turbulent boundary shear stress process

Blinn, P. H.; Mahmood, K.; Simons, D. B.
U. S. Dep. Agric., Agric. Res. Serv., Fort Collins, Colo.,
USA; Colo. State Univ., United States
Int. Assoc. Hydraul. Res., Congr., Proc. 15, Vol. 1 Flow in
channels with loose boundaries, 371-380p., 1973
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus., tables
Descriptors: engineering geology; waterways; channels;
processes; boundary; stress; shear; distribution; models
; stochastic; statistical methods; experimental studies
; Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

794318 76-20564

Investigation and forecast of sediment motion from position of reliability and probability theories

Mirtskhulava, T. Ye.; Magomedova, A. V.; Mikhailovna, M. A.
; Arkhangelskiy, M. M.; Verbitskiy, V. S.
Int. Assoc. Hydraul. Res., Congr., Proc. 15, Vol. 1: Flow in
channels with loose boundaries, 261-270p., 1973
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus
Descriptors: engineering geology; waterways; erosion;
sedimentation; experimental studies; Mirtskhulava, T. E.;
Mikhailovna, N. A.; Arkhangelskiy, M. M.; Verbitskiy, V. S.
; Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

794321 76-19869

Stochastic approach at the calculation of bed-load discharge in alluvial watercourses

Bozhinov, M.
Int. Assoc. Hydraul. Res., Congr., Proc. 15, Vol. 5,
35-38p., 1973
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus
Descriptors: sedimentation; engineering geology;
transport; waterways; stream transport; bed load;
calculation; methods; statistical methods; theoretical
studies
; Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

793222 76-19868

Stochastic methods for motion of suspended grains

Bayazit, M.
Int. Assoc. Hydraul. Res., Congr., Proc. 15, Vol. 5,
31-34p., 1973
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Descriptors: sedimentation; engineering geology;
transport; waterways; stream transport; sediments;
suspended; experimental studies; channels; flumes; flow;
turbulence; methods; statistical methods; models;
stochastic
; Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

793270 76-19516

Seismic risk in Italy for earthquakes of intensity IX (Mercalli scale)

Iaccarino, E.
Tectonophysics 30: 3-4, 261-167p., 1976
CODEN: TCTOAM
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., table, sketch map
Descriptors: Italy; seismology; earthquakes; engineering
geology; seismicity; Europe; volcanology; regional;
possibilities; statistical analysis; epcenters;
attenuation; seismic risk; occurrence; magnitude
; Section Headings: 19 (GEOPHYSICS, SEISMOLOGY)

792313 76-18559

The effect of alteration the Miocene clays composition upon their colloidal properties
Monjukho, A. M.; Panovov, S. I.

International clay conference; abstracts
Publ: Univ. Nac. Auton. Mex., Inst. Geol.
198-200p., 1975
Subfile: B

Country of Publ.: Mexico
Doc Type: 800K Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *USSR; *engineering geology; *weathering; *clay mineralogy; *materials; properties; *areal studies; sediments; clays; Caucasus; effects; colloidal properties; statistical analysis; clay minerals; hydromica; montmorillonite; deposits; Miocene; clay; engineering properties; Monjukho, A. M.
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

791291 76-17537

Izmenchivost' teplofizicheskikh kharakteristik poverkhnostnogo sloya gruntov
Variability of thermal of the surface layer of soils
Pavlov, A. V.

Problemy geokriologii

Tsvetkova, S. G. (EDITOR)
Publ: Izd. Nauka, Sib. Otd.
64-69p., 1973
Subfile: B

Country of Publ.: Union of Soviet Socialist Republics
Doc Type: 800K Bibliographic Level: ANALYTIC
Languages: Russian

illus., tables
Descriptors: *engineering geology; frost action; soils; loam; meadow; forests; frozen; thawed; surface layer; heat conductivity; factors; moisture; depth; experimental studies; statistical studies; USSR; Zaporisk
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

790002 76-16248

Velocity/porosity relationships in limestones from the Portland Group of southern England
Cole, D. I.

Geoporation 14: 1, 37-50p., 1976
CODEN: GEORAV
Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus., table, sketch map

Descriptors: *England; *engineering geology; *sedimentary rocks; *geophysical methods; *seismology; *materials; properties; elastic waves; carbonate rocks; seismic methods; limestone; elastic properties; porosity; velocity; experimental studies; statistical methods; data; sparite; micrite; microsparite; chalk; textures; cement; grains; size; classification; types; Jurassic; Portlandian; Europe; south
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

789582 76-15828

Engineering properties and slope form in granular soils

Rouse, W. C.
Eng. Geol. 9: 3, 221-235p., 1975
CODEN: EGGQAO
Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., geol. sketch map

Descriptors: *Wales; *engineering geology; *soils; materials; properties; engineering properties; sediments; slope stability; Glamorgan; soil mechanics; Europe; granular; grains; size; models; statistical methods; landslides; shallow; rates; applications; geomorphology; mass movements
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

789558 76-15804

Flood prediction of the Bhagirathi River, West Bengal

Ghosh, A.
Indian Geohydrol. 9: 2, 94-101p., 1973
CODEN: IGHYB2
Subfile: B

Country of Publ.: India

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

tables

Descriptors: *engineering geology; *India; geologic hazards; floods; prediction; statistical methods; stochastic; frequency; autoregression; Asia; Bhagirathi River; West Bengal
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

788837 76 15083

Examples of evaluating the results from sounding tests
Schultze, E.

Proceedings of the European symposium on penetration testing: Vol. 2; Part 2, papers

Brons, B. B. (Chairperson)

Publ. Natl. Swed. Build. Res.

353-359p., 1975

Subfile: B

Country of Publ.: Sweden

Doc Type: BOOK Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *engineering geology; *soils; soil mechanics;

engineering properties; cohesionless; sand; silt;

penetration testing; evaluation; statistical analysis;

foundations; methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

787363 76-13609

Comparison of relative densities estimated using different approaches

Bell, R. A.; Singh, J. P.

Dames & Moore, San Francisco, Calif., USA

Am. Soc. Test. Mater., Spec. Tech. Publ. 523: Relative

density, geotechnical projects, cohesionless soils, 455-462

p., 1973

CODEN: ASTTAB

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., table

Descriptors: *engineering geology; *soils; soil mechanics;

engineering properties; cohesionless; density; relative

density; measurement; methods; evaluation; experimental

studies; field studies; correlation; data; statistical

analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

787361 76-13607

Field and laboratory determination of maximum density in coarse sands and gravels for Mica Dam

Law, W. I.; Sener, C.

CASECO Consult., Mica Dam, Mica Creek, B.C., CAN

Am. Soc. Test. Mater., Spec. Tech. Publ. 523: Relative

density, geotechnical projects, cohesionless soils, 425-443

p., 1973

CODEN: ASTTAB

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *British Columbia; *engineering geology; *soils

; soil mechanics; engineering properties; dams; Mica Dam

; cohesionless; density; relative density; experimental

studies; field studies; tests; compaction; data;

statistical analysis; earth dams; earth-fill; sand; gravel

; materials; quality control; construction; Canada

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

787340 76-13586

Effect of variations in minimum density on relative density

Gupta, R. C.; McKeown, J. D.

Am. Soc. Test. Mater., Spec. Tech. Publ. 523: Relative

density, geotechnical projects, cohesionless soils, 85-97p.,

1973

CODEN: ASTTAB

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *soils; *engineering geology; engineering

properties; soil mechanics; cohesionless; relative density

; minimum density; variations; effects; tests; compaction

; data; statistical analysis; construction; controls;

Manitoba; Kettle Generating Station; density; experimental

studies; Canada; Gillam

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

787339 76-13585

Statistical significance of the relative density

Yoshimi, Y.; Tohno, I.

Am. Soc. Test. Mater., Spec. Tech. Publ. 523: Relative

density, geotechnical projects, cohesionless soils, 74 84p.,

1973

CODEN: ASTTAB

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *engineering geology; *soils; soil mechanics;

engineering properties; cohesionless; density; relative

density; measurement; tests; errors; statistical analysis;

data

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

787338 76-13584

Variability of laboratory relative density test results

Friedmann, D. A.
Bur. Reclam., Eng. Res. Cent., Denver, Colo., USA
Am. Soc. Test. Mater., Spec. Tech. Publ. 523: Relative
density, geotechnical projects, cohesionless soils, 61-73p.,
1973

CODEN: ASTTAB

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *engineering geology; *soils ; soil mechanics;
engineering properties ; cohesionless; density; relative
density; measurement; tests; compaction; variations;
accuracy; reproducibility; data; statistical analysis;
laboratories; United States; Bureau of Reclamation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

787337 76-13583

**Accuracy of relative density measurements: results of a
comparative test program**

Tavenas, F.; Ladd, R. S.; La Rochelle, P.
Woodward-Clohouse & Assoc., Inc., Clifton, N.J., United
States

Am. Soc. Test. Mater., Spec. Tech. Publ. 523: Relative
density, geotechnical projects, cohesionless soils, 18-60p.,
1973

CODEN: ASTTAB

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *engineering geology; *soils ; soil mechanics;
engineering properties ; cohesionless; density; relative
density; measurement; tests; compaction; variations;
accuracy; data; statistical analysis; programs; American
Society for Testing and Materials
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

785429 76-11675

Probabilistic aspects of slope stability

Lumb, P.
Univ. Hong Kong, HKG
Int. Symp. Landslide Control, Proc. 1, 125-131p., 1977

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

Note: With discussion.

Descriptors: *engineering geology ; slope stability ;

analysis; statistical methods; strength; failure; design;
probability
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

785329 76-11575

**Probability of failure and expected volume of failure in
high rock slopes**

McMahon, B. K.

Aust. Rock Eng. Consult., AUS

Aust.-N.Z. Conf. Geomech., Proc. 2, 308-313p., 1975

CODEN: PAZCAQ

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., table

Descriptors: *engineering geology ; slope stability ;
failure; probability; estimation; methods; mathematical
methods; slopes; long; excavations; time; open-pit mining
; mining geology
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

785298 76-11544

Presentation of fracture data for rock mechanics

Bridges, M. C.

Mt. Isa Mines Ltd., AUS

Aust.-N.Z. Conf. Geomech., Proc. 2, 144-148p., 1975

CODEN: PAZCAQ

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *structural analysis; *fractures; *engineering
geology ; interpretation; patterns; rock mechanics ;
mathematical models; presentation; tables; diagrams;
statistical methods; automatic data processing; orientation;
nomenclature; models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

785297 76-11543

An analysis of size effect behaviour in brittle rock

Brown, E. T.; Gohano, L. P.
Aust.-N.Z. Conf. Geomech., Proc. 2, 139-143p., 1975

CODEN: PAZCAQ

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: *engineering geology ; rock mechanics ; fractures; cracks; propagation; stress; failure; specimens; brittle; size; effects; analysis; theoretical studies; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

785278 76-11524

A method for the application of soil mechanics to non-homogeneous soils

McAnally, P. A.

Ground Test. Progr. Ltd., AUS

Aust.-N.Z. Conf. Geomech., Proc. 2, 26-30p., 1975

CODEN: PAZCAQ

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., tables

Descriptors: *engineering geology; *soils ; soil mechanics; engineering properties ; methods; statistical methods; models; design; parameters; selection; safety; factors; comparison; experimental studies; shear strength; compression; nonhomogeneous

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

784446 76-10692

Solution of a free-surface boundary value problem using an inverse formulation and the finite element method

Sheng, J. C.; Bruch, J. C., Jr.

Univ. Calif., Dep. Mech. Environ. Eng., USA

J. Hydrol., 26, 141-152p., 1975

CODEN: JHYDA7

Subfile: B

Country of Pub.: International

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus., table

Descriptors: *engineering geology ; seepage ; theoretical studies; statistical methods; finite element analysis; automatic data processing; hydrology

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

783642 76-09888

Predicted deformation of the upstream membrane of a rockfill dam

Penman, A. D. M.; Charles, J. A.

Ground Eng., 8, 6, 47-48p., 1975

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.

Descriptors: *England; *engineering geology ; dams ; Winscar Dam; rockfill; prediction; deformation; mechanism; statistical methods; finite element analysis; rock mechanics; compression; sandstone; Europe

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

783623 76-09869

Utilizarea analizei teritoriale a sirurilor hidrologice pentru determinarea parametrilor hidrologici de proiect cu diverse asiguranse

Use of territorial analysis of hydrologic sequences to determine probabilities of various hydrologic parameters

Plataga, Georgehe

Hydroteh., Gospod. Apelor, Meteorol. 18, 10, 517-524p., 1973

CODEN: HGAMAL

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Romanian Summary Languages: English

illus., tables, sketch map

Descriptors: *Romania; *hydrology; *engineering geology ; hydrogeology; rivers and streams; waterways ; east; Siret River; Prut River; Europe; discharge; prediction; statistical methods; probability distributions

Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

783609 76-09855

Calculul deformatiilor barajelor din anrocamente
Calculation of deformation on rockfill dams
Constantinescu, Alexandru; Comsa, Radu; Otea, Valeriu
Hidroteh., Gospod. Apelor, Meteorol. 18: 1, 20-23p.,
1973

CODEN: HGAMAL
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Romanian Summary Languages: English
illus., tables
Descriptors: engineering geology; dams; rockfill;
deformation; profiles; statistical methods; finite element
analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

783602 76-09848

Eforturi si deformatii in baraje din materiale locale
Stress-strain analyses of earth-and-rockfill dams
Constantinescu, Alexandru; Comsa, Radu; Otea, Valeriu
Hidroteh., Gospod. Apelor, Meteorol. 17: 8, 407-416p.,
1972

CODEN: HGAMAL
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Romanian Summary Languages: English
illus., tables
Descriptors: engineering geology; dams; rockfill;
earthfill; stress; strain; settlement; statistical methods
finite element analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

783586 76-09832

Folosirea functiilor de distributie multidimensionale la
rezolvarea unor probleme de hidrologie si hidraulica a
rurilor
The use of multi-sized distribution functions to solve
problems of river hydrology and hydraulics
Bancu, S.

Hidroteh., Gospod. Apelor, Meteorol. 17: 1, 1-13p.,
1972
CODEN: HGAMAL
Subfile: B
Country of Publ.: Romania
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Romanian Summary Languages: English
illus., tables
Descriptors: hydrology; engineering geology; rivers and
streams; methods; hydraulics; frequency; floods; water
levels; maxima; statistical methods; distribution functions
multidimensional

782965 76-09211

A systematic determination of engineering criteria for rock
Aufmuth, R. E.
Assoc. Eng. Geol., Bull. 12: 1, 80-81p., 1975
CODEN: ENGEA9

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Note: Reply.
Descriptors: engineering geology; materials; properties
rocks; criteria; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

782964 76-09210

A systematic determination of engineering criteria for rock
Avolio, G. W.; Clarkson, O. D.
Assoc. Eng. Geol., Bull. 12: 1, 77-79p., 1975
CODEN: ENGEA9

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Note: Discussion, illus.
Descriptors: engineering geology; materials; properties
rocks; criteria; statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

782542 76-08788

Determination of joint populations and their significance for tunnel stability

Robertson, A. MacG.; Piteau, D. R.
Frankville S.A. (Pty.) Ltd., Johannesburg, ZAF; Piteau,
Gadsby Macleod Ltd., Geotech. Consult., Canada
SOC. Min. Eng. AIME, Trans. 254, 135-139p., 1973
CODEN: TMENAE

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *engineering geology; tunnels; slope
stability; joints; orientation; continuity; populations;
models; field methods; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

782058 76-08304

Trend surface analysis for geotechnical site planning

Giardino, S. Jr.; Kuhlavy, F. H.
Eng. F. Lab., Inc., Phoenix, Ariz., USA; Syracuse Univ.,
United States
Assoc. Eng. Geol., Bull. 12: 3, 177-192p., 1975
CODEN: ENGEA9

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *New York; *engineering geology; *automatic
data processing; methods; Onondaga County; site
exploration; foundations; urban planning; central;
Syracuse; statistical methods; trend-surface analysis;
stratigraphy; subsurface; units; boundary; experimental
studies; field studies; well-logging; United States
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

781784 76-08030

**Alcune considerazioni sulla trattazione matematica del problema del moto in acquiferi fessurati
A mathematical approach to the problem of water movement in fissured aquifers**

Benedini, M.; Giuliano, G.; Troisi, S.
Geol. Appl. Idrogeol., 7, 75-100p., 1972
CODEN: GAID8G

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Italian Summary Languages: English

Descriptors: *engineering geology; *ground water;
materials; properties; aquifers; fractures; hydrodynamics

; statistical analysis; mathematical models; homogeneity;
permeability; effects; fissures
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

780373 76-06619

Probability concepts in earthquake engineering

Ang, A. H. S.
Univ. Illinois, Urbana, Ill., USA
Am. Soc. Mech. Eng., Appl. Mech. Div., Appl. Mech. Symp.,
Ser. B, 229-259p., 1974
CODEN: AMDVAS

Subfile: B
Country of Publ.: United States
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English

Descriptors: *engineering geology; earthquakes; concepts
; probability; ground motion; models; seismic risk
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

779757 76-06003

Regional evaluation of landslide hazard; a semi-quantitative method

Kojan, Eugene
U. S. Forest Serv., Geotech. Mat. Eng., Pleasant Hill,
Calif., USA
Geol. Soc. Am., Abstr. Programs 6: 7, 829-830p., 1974
CODEN: GAAPBC

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Descriptors: *engineering geology; slope stability;
landslides; prediction; analysis; statistical methods;
photogrammetry; mapping
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

779571 76-05817

Influencia da natureza do solo na segurancia das estruturas aos sismos
Effects of soil conditions on earthquake structural safety
Mineiro, A. J. C.
Geotecnia (Agrupamento Port. Mec. Solos Rochas) 1, 49-63
p., 1971

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Portuguese Summary Languages: English
illus., table
Descriptors: *Portugal; *engineering geology; *seismology ;
soil mechanics; elastic waves; earthquakes; San Jose;
Neveri; Mijagual; failure; probability; geologic hazards;
Europe; microseisms; intensity; relation; structures
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

779570 76-05816

Segurancia e coeficiente da segurancia em geotecnica
Safety and safety factor in engineering geology
Nascimento, U.; Branco Falcao, Castel
Geotecnia (Agrupamento Port. Mec. Solos Rochas) 1, 31-46
p., 1971

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Portuguese Summary Languages: English
illus., table
Descriptors: *engineering geology; rock mechanics; rocks
; brittle; deformation; cohesion; mathematical models;
probability; failure; safety
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

779447 76-05893

O veroyatnost' vliyaniya tektonicheskogo faktora na probiznaniye poverkhnosti Apsheonskogo poluostrova
Probability of the influence of tectonic factors on undulations of the surface of the Apsheon Peninsula
Guseyn-Zade, O. D.; Vashchenko, V. R.
Geod. Kartogr. 6, 16-18p., 1974
CODEN: GZKGAS

Subfile: B
Country of Publ.: Union of Soviet Socialist Republics
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Russian
block diag.
Descriptors: *USSR; *engineering geology; land subsidence
; Apsheon Peninsula; Sutgait; Balakhny; Tyurkany;
Karadag; geodetic measurement; relation; petroleum;
deposits; production
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

779328 76-05574

Proposta di un metodo statistico per lo studio della stabilita dei versanti
A statistical method for slope stability studies
Magaldi, D.
Geol. Tec. 19: 4, 121-126p., 1972
CODEN: GETEAX

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Italian Summary Languages: French
illus., tables
Descriptors: *engineering geology; *environmental geology ;
slope stability; reclamation; statistical methods;
prediction; examples; Europe; Italy; slopes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

779313 76-05559

Studio geomecanico della frana in roccia al km 193 della S.S. 42 del Tonale e della Mendola (Trentino)
A geomechanical study of a rockslide at kilometer 193 between Tonale and Mendola on S.S. 42, Trentino
Largatelli, T.; Tersar, A.
Geol. Tec. 21: 5, 188-195p., 1974
CODEN: GETEAX

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Italian Summary Languages: English
illus., sketch map
Descriptors: *structural analysis; *Italy; *engineering geology; interpretation; rock mechanics; rockslides;
friction; cohesion; hydrostatic pressure; Trentino; Tonale
; Mendola; statistical analysis; slope stability;
mechanism; highways; Europe
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

777321 76-03567

Numerical dynamic analysis of quartz deformation lamellae and calcite and dolomite twin lamellae

Shang, J. H.; Van der Lee, Joyceanne
Geol. Soc. Am. Bull. 86: 9, 1266-1272p., 1975
CODEN: BUCMAF

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.
Descriptors: *deformation ; experimental studies ; lamellae; deformation lamellae; quartz; twin lamellae; calcite; dolomite; twin gliding; dynamics; analysis; methods; statistical methods; numerical dynamic analysis; structural analysis; petrofabrics; rock mechanics; samples; Rocky Mountains; Canada
Section Headings: 16 (STRUCTURAL GEOLOGY)

774946 76-01192

A statistical theory of the polyaxial strength of materials

Lundborg, N.
Int. Soc. Rock Mech., Congr., Proc. 3, Vol. 2, Part A: Advances in rock mechanics; reports of current research, 180-185p., 1974
CODEN: 32ZUA4

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

Note Includes appendix of mathematical derivations, illus.

Descriptors: *engineering geology ; materials; properties ; strength; distribution; models; polyaxial; stress; yield planes; internal friction; theoretical studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

774590 76-00836

Statistical study of rock drilling by hypervelocity jets from explosive shaped charges

Rollins, Ronald R.; Clark, George B.; Brown, John W.
Univ. Mo., Rock. Mech. Explos. Res. Cent., USA; Min. Enforc. Saf. Admin. United States
Int. Soc. Rock Mech., Congr., Proc. 3, Vol. 2, Part B: Advances in rock mechanics; reports of current research, 1384-1389p., 1974
CODEN: 32ZUA4

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

illus., table

Descriptors: *engineering geology ; rock mechanics ;

methods: fragmentation; shaped charges; jets; velocity;
rock type: experimental studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

774582 76-00828

Statistical analysis of percentage of failed rock for the purpose of selecting the location of the Salakovac diversion tunnel

Selimovic, Mustafa

Int. Soc. Rock Mech., Congr., Proc. 3, Vol. 2, Part B: Advances in rock mechanics; reports of current research, 1326-1331p., 1974
CODEN: 32ZUA4

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

illus., sketch map

Descriptors: *Yugoslavia; *engineering geology ; dams ; Neretva River; Salakovac Tunnel; rock mechanics ; rocks ; fractured; site exploration; tunnels; diversion tunnels; Europe
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

774542 76-00788

A probabilistic approach to geologic investigations for hard-rock tunnels

Vick, Steven G.; Einstein, Herbert H.
Dames and Moore, Salt Lake City, Utah, USA
Int. Soc. Rock Mech., Congr., Proc. 3, Vol. 2, Part B: Advances in rock mechanics; reports of current research, 1069-1075p., 1974
CODEN: 32ZUA4

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

illus.

Descriptors: *engineering geology ; tunnels ; theoretical studies; methods; prediction; conditions; rock mechanics; hard rocks; probability analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

774528 76-00774

Probability of pillar failure at Elliot Lake

Coates, D. F.
Int. Soc. Rock Mech., Congr., Proc. 3, Vol. 2, Part B:
Advances in rock mechanics: reports of current research,
990-996p., 1974
CODEN: 32ZUA4

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
Descriptors: Ontario; engineering geology; rock
mechanics; Elliot Lake; mining geology; excavations;
subsurface; pillars; strength; failure; field studies;
Canada
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

765243 75-33132

New seismic study begins in Puerto Rico

Tarr, Arthur C.
Earthquake Inf. Bull. 6, 4, 23-26p., 1974
CODEN: NEIBAC

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
Illustrations: sketch map
Descriptors: seismology; Puerto Rico; engineering geology
; observatories; earthquakes; seismic zones; seismic
risk; statistical methods; West Indies; regional
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

764395 75-30327

Engineering-geological and geological-economical prerequisites of underground construction

Shvetsov, P. F.; Zilberbord, A. F.
All-Union Sci. Res. Inst. Hydrogeol., Eng. Geol., Moscow, SUN
Int. Assoc. Eng. Geol., Int. Congr., Proc. 2, Vol. 2, VII
12, 1-VII 12, 6p., 1974
CODEN: 29ZUA9

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
Descriptors: USSR; engineering geology; underground
installations; factors; geological; economics;
theoretical studies; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

764394 75-30326

Tectonic stress fields and methodology of their

determination and consideration in engineering geological examinations and constructing underground structures

Turchaninov, I. A.; Markov, G. A.; Pavlin, V. I.
USSR Acad. Sci., Kola Branch, Apatity, SUN
Int. Assoc. Eng. Geol., Int. Congr., Proc. 2, Vol. 2, VII
11, 1-VII 11, 6p., 1974
CODEN: 29ZUA9

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
Illustrations:
Descriptors: engineering geology; methods; statistical
methods; calculations; stress fields; tectonics;
underground installations; mathematical models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

764393 75-30325

Engineering geological aspects on the lining of caverns in sedimentary rock

Heitfeld, K. H.; Hesse, K. H.
Lehrstuhl Ingenieurgeol. Hydrogeol., Rein, DFU
Int. Assoc. Eng. Geol., Int. Congr., Proc. 2, Vol. 2, VII
10, 1-VII 10, 12p., 1974
CODEN: 29ZUA9

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
Illustrations: tables
Descriptors: engineering geology; theoretical studies;
anchoring; stabilization; excavations; underground;
effects; fabric; joints; mechanical properties; methods;
statistical methods; caves; sedimentary rocks
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

764391 75-30323

Complex documentation of exploratory working

Horsky, O.; Muller, K.; Travnicek, L.
 GEOTEST, Natl. Enterprise Brno, Ostrava Branch, Ostrava, CSK
 Int. Assoc. Eng. Geol., Int. Congr., Proc., 2, Vol. 2, VII
 1-VII 8-7p., 1974
 CODEN: 29ZJAG

Subfile: B
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English Summary Languages: French
 illus.

Descriptors: Czechoslovakia; engineering geology;
 methods; statistical methods; documentation; data; Europe
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

764362 75-30294

**Mesures du coefficient de permeabilite par essais ponctuels
 Measurement of permeability**

Rat, N.; Laviron, F.
 Lab. Cent. Ponts et Chaussees, Orly Aerogare, FRA
 Int. Assoc. Eng. Geol., Int. Congr., Proc., 2, Vol. 2, VI
 16.1-VI 16.6p., 1974
 CODEN: 29ZJAG

Subfile: B
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: French Summary Languages: English
 illus.; table

Descriptors: France; engineering geology; methods;
 Margins; statistical methods; measurement; permeability;
 coefficient; boreholes; tests; pumping; flow;
 mathematical models; Europe
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

764349 75-30281

Geometrical characterization of jointing of rock masses

Murachao, N.
 COPEF Eng. Dep. Geomec., Rio de Janeiro, BRA
 Int. Assoc. Eng. Geol., Int. Congr., Proc., 2, Vol. 2, VI
 3.1-VI 3.10p., 1974
 CODEN: 29ZJAG

Subfile: B
 Doc Type: SERIAL Bibliographic Level: ANALYTIC
 Languages: English Summary Languages: French
 illus.

Descriptors: engineering geology; methods; statistical
 methods; joints; patterns; concepts; theoretical studies;
 mathematical models; applications; dams; foundations;
 Europe; Portugal; Alto Lindoso Dam; Spain; Alcantara Dam
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

764259 75-30191

**A factor of safety approach for evaluating seismic stability
 of slopes**

Roth, Wolfgang; Lee, Kenneth L.
 Univ. Calif., Los Angeles, USA
 U. S. National Conference on earthquake engineering, Ann
 Arbor, Mich., United States, June 18-20, 1975
 U. S. Natl. Conf. Earthquake Eng., Proc., 1975, 156-165p.,
 1975

Subfile: B
 Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus.

Descriptors: engineering geology; methods; statistical
 methods; finite element analysis; slope stability; seismic;
 factors; safety
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

764251 75-30183

**Statistical uncertainty of design based on smoothed response
 spectra**

Donovan, N. C.; Valera, J. E.; Beresford, P. J.
 James & Moore, San Francisco, USA
 U. S. National Conference on earthquake engineering, Ann
 Arbor, Mich., United States, June 18-20, 1975
 U. S. Natl. Conf. Earthquake Eng., Proc., 1975, 53-59p.,
 1975

Subfile: B
 Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic
 Level: ANALYTIC
 Languages: English
 illus.

Descriptors: engineering geology; seismicity;
 earthquakes; methods; ground motion; response spectra;
 effects; design; evaluation; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

763714 75-29571

Geology and probability in the assessment of seismic risk

Esteve, L. Autonoma Mexico, Mexico, MEX
Univ. Assoc. Eng. Geol., Int. Congr., Proc. 2, Vol. 1, 11
PC 2.1-11 PC 2.14p., 1974

CODEN: 292JAG

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English
Sketch map, tables

Descriptors: *seismology; *engineering geology;
theoretical studies; earthquakes; seismic risk;
probability; evaluation; Mexico

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

763066 75-28840

Ob informatsionno-statisticheskikh priyemakh interpretatsii kompleksnykh geologo-geofizicheskikh izyskaniy
The statistical data for the interpretation of complex geological and geophysical investigations
Khmilevskoy, V. K.
Moscow, Univ., Vestn., Ser. Geol., 4, 74-80p., 1974

CODEN: VMUGAR

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: Russian

Descriptors: *geophysical methods; *engineering geology;
Methods: frost action; statistical methods; interpretation;
; theoretical studies; models; mathematical methods;
applications; permafrost

Section Headings: 20 (GEOPHYSICS, APPLIED)

763653 75-29510

Distribution analysis of soil-physical characteristics for engineering geological purposes

Paal, T.
Munic. Plan. Off. Civl. Eng., Soil Mech. Sec., Budapest,
HUN
Int. Assoc. Eng. Geol., Int. Congr., Proc. 2, Vol. 1, IV
3.1-1V 3.6p., 1974

CODEN: 292JAG

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English Summary Languages: French

illus.

Descriptors: *Hungary; *engineering geology; *soils;
Methods: engineering properties; soil mechanics; Budapest;
statistical methods; evaluation; Buda Marl; Kiscell Clay;

Kolmogorov-Smirnov method; Europe; marl; clays

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

762313 75-28084

Sedimentation rates in small headwater reservoirs in Montana

Marsh, Phyllis S.
Montana
208p., 1974

Subfile: B

Degree Level: Doctoral

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Diss. Abstr. Int., Vol. 35, No. 7, p. 34308, 1975.

Descriptors: *Montana; *engineering geology; reservoirs;
surface; sedimentation; rates; drainage basins; alpine;
statistical methods; United States

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

763637 75-29494

Proprietes des calcaires

The properties of carbonate rocks

Imreng, C.; Archimbaud, C.
Int. Assoc. Eng. Geol., Int. Congr., Proc. 2, Vol. 1, IV
19.1-1V 19.11p., 1974

CODEN: 292JAG

Subfile: B

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: French Summary Languages: English

illus., tables

Descriptors: *engineering geology; *sedimentary rocks;
Methods: carbonate rocks; statistical methods; evaluation;
physical properties; Europe; France; properties; strength

; compression; elastic properties; utilization

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

760375 75-26146

Analysis of seismic risk

Caputo, M.
Univ. Bologna, Inst. Geofis., Bologna, ITA
NATO Adv. Study Inst. Ser., Ser. E, Appl. Sci. 3, 55-85
P., 1974

CODEN: NASEDC

Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables, sketch maps
Descriptors: Italy; earthquakes; engineering geology;
seismology; Europe; seismic risk; distribution; frequency;
seismicity; zoning; applications; statistical methods
Section Headings: 19 (GEOPHYSICS, SEISMOLOGY)

760240 75-26011

**Lineamenti granulometrici e calcimetrici della spiaggia
emersa e sommersa lungo il litorale romagnolo-marchigiano
tra le foci dei fiumi Savio e Foglia**
The granulometric and calcimetric lineaments of the emerged
and submarine beach along the Romagna and Marche's shelf
between the Savio and Foglia estuaries, Italy
Antoniazzi, Alberto

Publ. Camera Comm. Ind. Artigianato Agr.

33p., 1975

Subfile: B

Country of Publ.: Italy

Doc Type: BOOK Bibliographic Level: MONOGRAPHIC

Languages: Italian
Tables: 1:200,000;
Descriptors: Italy; granulometric
sediments; shorelines; environment; environmental
analysis; beaches; conservation; Romagna; Marche; Savio
River; Foglia River; Adriatic Sea; marine; littoral;
subaqueous; subaerial; granulometry; calcimetry;
statistical methods; provenance; clastics; terrigenous;
carbonates; stabilization; Europe
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

757336 75-23107

**Preparation and use of isopleth maps of landslide deposits
[discussion and reply]**

Vitek, John D.; Wright, R. H.; Campbell, R. H.; Nilsen, T.
M.

Geology (Boulder) Vol. 3, No. 4, p. 217-218, 1975

CODEN: GIGYBA

Subfile: B

Doc Type: SERIAL

Languages: English

For reference to article by Wright, R. H., et al., see

Geology (Boulder), Vol. 2, p. 483, 1974
Descriptors: *Geomorphology; *Engineering geology; Mass
movements; Slope stability; Landslides; statistical
methods; maps; isopleth; utilization
Section Headings: 23 (SURFICIAL GEOLOGY, GEOMORPHOLOGY)

756458 75-22229

Low-rise building damage from low-amplitude ground motions

Scholl, Roger E.
Seismol. Soc. Am., Bull. Vol. 64, No. 6, p. 1743-1755,
illus. (incl. sketch map), 1975
CODEN: BSSAAP

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Nevada; *Seismology; *Engineering geology;
Nuclear explosions; damage; south; Nevada Test Site; Las
Vegas; Tonopah; Beatty; Underground; effects; buildings;
Ground motion; low amplitude; low-rise buildings;
correlation; statistical methods; United States
Section Headings: 19 (GEOPHYSICS, SEISMOLOGY)

756114 75-21885

**Adjustment of logarithmic flood-frequency statistics for
gaged California streams to minimize the time sampling error**

Rantz, S. E.; Crippen, J. R.
J. Res. U.S. Geol. Surv. Vol. 3, No. 1, p. 113-121, sketch
map, 1975

CODEN: JRGSAA

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *California; *Hydrology; *Environmental geology
; *Engineering geology; Hydrogeology; Rivers and streams;
Geological hazards; regional; United States; floods;
frequency; analysis; sampling; errors; time; statistical
methods; logarithms; techniques
Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

755053 75-20824

Gully Erosion, Northwestern Colorado: A Threshold Phenomenon
 Patton, Peter C.; Schumm, Stanley A.
 Geology (Boulder) Vol. 3, No. 2, p. 88-89, illus., 1975
 CODEN: GLGYBA
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Descriptors: *Colorado; *Geomorphology; *Engineering geology
 : Processes: Slope stability; Erosion; gullies;
 drainage basins; Piceance Creek; Yellow Creek;
 sedimentation; slopes; critical; threshold; analysis;
 statistical methods; oil shale; United States
 Section Headings: 23 (SURFICIAL GEOLOGY, GEOMORPHOLOGY)

755006 75-20777

International Field Year for the Great Lakes
 Phillips, D. J.
 IFYGL Bull. No. 11, 113 p., illus., 1974
 CODEN: IFYGAJ
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Descriptors: *Geomorphology; *Great Lakes; *Associations;
 Lacustrine features: Areal geology; General; Surveys;
 : Statistical studies: field studies; hydrology; pollution;
 chemistry; biology; climatology; current research; United
 States; Canada; hydrogeology; engineering geology;
 environmental geology; International Field Year for the Great
 Lakes
 Section Headings: 13 (AREAL GEOLOGY, GENERAL)

754840 75-20611

The approximate probability density function of range and
 adjusted range
 Sutabutr, Prathet.

In Water for the Human Environment (edited by Chow, V. T.,
 et al.); Vol. 4, Special sessions: Systems analysis, p.
 427-438, illus.,
 Int. Water Resour. Assoc. Champaign, Illinois, 1973
 Subfile: B
 Languages: English
 Descriptors: *Engineering geology; Reservoirs; Surface;
 storage; volume; water level; distribution; estimation;
 mathematical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

753385 75 19156

Range of cumulative sums: 1, Exact and approximate expected
 values

Salas-La Cruz, J. D.
 J. Hydrol. Vol. 23, No. 1-2, p. 39-66, illus., 1974
 CODEN: JHYDA7
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Reservoir storage
 Descriptors: *Engineering geology; Reservoirs; Surface;
 storage; variations; fluctuations; theoretical studies;
 mathematical methods; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

753381 75-19152

Range of cumulative sums: II, Application to storage
 capacity of reservoirs

Salas-La Cruz, J. D.
 J. Hydrol. Vol. 23, No. 3-4, p. 329-339, illus., 1974
 CODEN: JHYDA7
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Descriptors: *Engineering geology; Reservoirs; Surface;
 storage; capacity; determination; theoretical studies;
 mathematical methods; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

752546 75-18317

The serial correlation in a simple dam process
 Blomqvist, Nils.

In Modelling of Water Resources Systems I (edited by Blivas,
 Asit K.), p. 283-296,
 Harvest House Montreal, 1972
 Subfile: B
 Languages: English
 Descriptors: *Engineering geology; Dams; Mathematical
 methods; statistical methods; storage; hydrology
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

752227 75-17998

Global tectonics and earthquake risk

Limnütz, Cinnal.
Dev Geotectonics No. 5, 320 p., illus. (incl. maps).
1974
CODEN DEVCAG
Subfile B
Doc Type SERIAL
Languages English
Descriptors *Tectonophysics; *earthquakes; *maps;
*Engineering geology; Concepts; prediction; Cartography;
Continental drift; plate tectonics; sea floor spreading;
global; Geologic hazards; seismic risk; prevention;
seismicity; data; distribution; zoning; models; risk;
methods; statistical methods; stochastic; heuristic;
topological; Tectonic
Section Headings 19 (GEOPHYSICS, SEISMOLOGY)

751872 75-17643

Linear Decision Rule in Reservoir Management and Design; 5.

A General Algorithm
Gundelach, Rose, Revelle, Charles
Water Resour. Res. Vol. 11, No. 2, p. 204-207. 1975
CODEN WRRER4
Subfile B
Doc Type SERIAL
Languages English
Descriptors *Engineering geology; Methods; Statistical
methods; Linear decision rule; applications; reservoirs;
surface; management; design; algorithm
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

751871 75-17642

Linear Decision Rule in Reservoir Management and Design; 4.

A Rule That Minimizes Output Variance
Revelle, Charles; Gundelach, Rose.
Water Resour. Res. Vol. 11, No. 2, p. 197-203. 1975
CODEN WRRER4
Subfile B
Doc Type SERIAL
Languages English
Descriptors *Maryland; *Engineering geology; Methods;
Reservoirs; surface; Gunpowder River; Statistical methods;
analysis; Linear decision rule; applications; management;
design; output; variance; United States
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

751800 75-17571

Limit analysis by finite-element methods [with discussion]
Fremont, M.; Salencon, J.

In Proceedings of the Symposium on the Role of Plasticity in Soil Mechanics (edited by Palmer, Andrew C.), p. 297-309. illus.,
Camb. Univ. Eng. Dep. Cambridge, England. 1973
Subfile B
Languages English
Descriptors *Engineering geology; *soils; Methods;
Engineering properties; Statistical methods; finite element
analysis; kinematics; plastic properties; Soil mechanics;
finite-element analysis
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

751799 75-17570

Numerical analysis of plasticity in soils [with discussion]
Smith, J. M.

In Proceedings of the Symposium on the Role of Plasticity in Soil Mechanics (edited by Palmer, Andrew C.), p. 278-298. illus.,
Camb. Univ. Eng. Dep. Cambridge, England. 1973
Subfile B
Languages English
Descriptors *Engineering geology; *soils; Methods;
Engineering properties; Statistical methods; analysis;
plasticity; slope stability; foundations; Soil mechanics;
elastic properties; relation
Section Headings 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

751006 75-16777

Friction Characteristic of Graphite Coated Bedding Joints in

Shale

Chanpell, B. A.
Int. J. Rock Mech. Min. Sci. Vol. 12, No. 2, p. 33-39,
illus., 1975
CODEN: IJRMAS
Subfile: B

Doc Type: SERIAL
Languages: English
Descriptors: Engineering geology; Rock mechanics;
Sedimentary rocks; models; statistical; analysis; friction;
properties; joints; natural; graphite-coated; shale;
response; deformation; stiffness; friction; angles;
interaction; factors; experimental studies; theoretical
studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

750487 75-16258

Statistical analysis of seismic environment in New York

State

De Capua, N. J.; Liu, S. C.

In The Fifth Symposium on Earthquake Engineering (see Anand
S. Aryal, p. 389-398, illus. (incl. sketch maps), 1974

Sarita Prakashan Nauchandi, Meerut, India, 1974
Subfile: B
Languages: English
Descriptors: Engineering geology; New York; Environmental
geology; Seismology; Geological hazards; Earthquakes;
analysis; statistical methods; environment; seismicity;
interpretation; applications; data; United States;
regional
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

750491 75-16252

**Probability of failure of structures under earthquake
excitations**

Iyengar, R. Narayana; Jagadish, K. S.

In The Fifth Symposium on Earthquake Engineering (see Anand
S. Aryal, p. 253-258, illus.,
Sarita Prakashan Nauchandi, Meerut, India, 1974

Subfile: B
Languages: English
Descriptors: Engineering geology; Theoretical studies;
Analysis; probability; failure; structural effects;
earthquakes; excitations
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

750097 75-15868

An analytical method for forecasting snow avalanches

Chitadre, V. S.

In Physics of snow and snow avalanches, p. 262-270,
Indian Natl. Sci. Doc. Cent. New Delhi, 1972

Subfile: B
Languages: English
Translated from Russian.
Descriptors: Geomorphology; Engineering geology; Methods;
prediction; mass movements; Statistical methods; analysis;
models; theoretical studies; avalanches; snow; mathematical
Section Headings: 24 (SURFICIAL GEOLOGY, QUATERNARY GEOLOGY)

749942 75-15713

Geofizicheskiye issledovaniya kollektorskikh svoyst v porod
v sverkhglubokikh skvazhinakh
Geophysical investigations of rock-reservoir properties in
very deep wells
popov, V. K.

In Razvedochnaya geofizika SSSR na rubezhe 70-kh godov;
Geofizicheskiye issledovaniya neftyanykh i gazovykh skvazhin,
p. 283-287, illus.,
Izd. Nedra Moscow, 1974

Subfile: B
Languages: Russian
Descriptors: Petroleum; Engineering geology; Geophysical
Methods; Reserves; Rock mechanics; Methods; Reservoirs;
subsurface; porosity; permeability; statistical methods;
interpretation; applications; Pressure; resistivity;
temperature; sedimentary rocks; depth; effects;
exploration; properties; parameters
Section Headings: 20 (GEOPHYSICS, APPLIED)

74RG29 75-14399

Earthquake Damage and Related Statistics

Steinbrugge, Karl V.; Schader, Eugene E.

In San Fernando, California, Earthquake of February 9, 1971; Volume 1, Effects on Building Structures; Part B, Buildings Continued; Soils and Foundations (Edited by Neil A. Benfer and Jerry L. Coffman), p. 691-724, illus. (incl. maps).
U. S. Dep. Commer., Natl. Oceanic Atmos. Adm., Environ. Res. Lab., Washington, D. C., 1973

Subfile: B
Languages: English
Descriptors: *California; *Engineering geology; *Earthquakes; *Los Angeles County; *San Fernando; *Effects; *Seismology; *Economics; 1971; United States
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

747941 75-12864

The measurement of spatial deformations by geodetic methods

Anderson, V.

In Field Instrumentation in Geotechnical Engineering, p. 1-12, illus.

John Wiley & Sons, New York, 1974
Subfile: B
Languages: English
Descriptors: *Engineering geology; *Methods; *Geodesy; *Deformation; *Spatial measurement; *Statistical methods; *Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

741947 75-10783

Statistical Correlation of Physical Properties and Sound Velocity in Sediments

Anderson, Richard S.

In Physics of Sound in Marine Sediments, Mar. Sci. Vol. 1, p. 481-518, illus. (incl. sketch maps), 1974

CODEN: MASCDT
Subfile: B
Doc Type: SERIAL
Languages: English
Descriptors: *Ocean floors; *Geophysical methods; *Engineering geology; *Sedimentation; *Properties; *Acoustical methods; *Materials; *Sediments; *Interpretation; *Marine velocity; *Correlation; *Grains; *Size; *Statistical methods; *Elastic waves
Section Headings: 20 (GEOPHYSICS, APPLIED)

744797 75-10233

Statistical Study of Geopressed Reservoirs in Southwest Louisiana

Perry, D. R., Jr.

In Third Symposium on Abnormal Subsurface Pore Pressure, Preprints, p. 115-117, illus. (incl. sketch map), Am. Inst. Min., Metall., and Pet. Eng., Inc., New York, 1972

Subfile: B
Languages: English
Descriptors: *Louisiana; *Engineering geology; *Reservoirs; *Subsurface; *Southwest; *Gulf Coastal Plain; *Gas; *Natural pressure; *Geopressure; *Distribution; *Statistical methods; *Tertiary; *United States
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

744643 75-10079

Finite element analysis of centrifuged and built-up slopes

Smith, I. M.; Hobbs, R. Geotechnique Vol. 24, No. 1, p. 531-559 (incl. Fr. sum.), illus., 1974

CODEN: GINQAB
Subfile: B
Doc Type: SERIAL
Languages: English
Descriptors: *Engineering geology; *Soils; *Slope stability; *Engineering properties; *Statistical methods; *Finite element analysis; *Experimental studies; *Field studies; *dams; *Embankments; *Soil mechanics
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

743746 75-09182

Geologia aplicada al tratamiento de los macizos rocosos y técnicas de interpretación
Geology applied to the treatment of rocky massifs; techniques of interpretation
 Joulain, Charles.

In II Coloquio Nacional de Mecanica de Rocas; Tema 3, Influencia de la presion intersticial sobre las condiciones resistentes.

Spain, Serv. Geol. Obras Publicas, Bol. No. 33, p. 127-146, illus. (incl. map), 1970

CODEN: SSCBBK

Subfile: B

Doc Type: SERIAL

Languages: Spanish

Descriptors: *Engineering geology; *tectonics; *fractures; Rock mechanics; Structure; Style; Foundations; Lithology; Mining; mapping; methods; Faults; Folds; Joints; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

743714 75-09150

Tema 3; influencia de la presion intersticial sobre las condiciones resistentes
Influence of the interstitial pressure under the conditions of resistance
 Hincar Benitez, Miguel A.

In II Coloquio Nacional de Mecanica de Rocas,
 Spain, Serv. Geol. Obras Publicas, Bol. No. 31, p. 153, 1970

CODEN: SSCBBK

Subfile: B

Doc Type: SERIAL

Languages: Spanish

Descriptors: *Engineering geology; *fractures; Rock mechanics; Style; joints; statistical methods; distribution; orientation; type; direction; dip

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

747684 75-09120

Tema 1; permeabilidad de macizos rocosos; Metodos para medirla
Permeability of rocky massifs; Methods for measurement
 Alvarez Martinez, Alfonso.

In II Coloquio Nacional de Mecanica de Rocas,
 Spain, Serv. Geol. Obras Publicas, Bol. No. 31, p. 49-51, 1970

CODEN: SSCBBK

Subfile: B
 Doc Type: SERIAL
 Languages: Spanish
 Descriptors: *Engineering geology; Rock mechanics; Permeability; tests; Lugeon; cavities; shape; water circulation; vertical; horizontal; water table; tectonics; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

743566 75-09002

Probabilistic Analysis of Seepage

Wu, Tien H.; Vyas, Shyam K.; Chang, Nien-Yin.
 Am. Soc. Civil Eng., Proc. (J. Geotech. Eng. Div.) Vol. 100, No. GT11, p. 1252-1253, illus., 1974

CODEN: AUGEB6

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Engineering geology; Seepage; Analysis; probability

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

743550 75-08986

Probabilistic Analysis of Seepage [discussion]

Kelly, William E.
 Am. Soc. Civil Eng., Proc. (J. Geotech. Eng. Div.) Vol. 100, No. GT3, p. 373-374, 1974

CODEN: AUGEB6

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Engineering geology; Seepage; Analysis; probability

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

reservoir
 Ghez, F.; Janot, P.
 Inst. Fr. Pet., Rev. Vol. 29, No. 3, p. 375-386 (incl.
 Engl., Span. sum.), illus., 1974
 CODEN: RIFPA9
 Subfile: B
 Doc Type: SERIAL
 Languages: French
 Descriptors: *Fractures; *petroleum; *France; *Engineering
 geology; *Theoretical studies; Europe; Economic geology;
 Reservoirs; Patterns; distributions; blocks; volumes;
 calculation; reservoir rocks; mathematical methods;
 recovery; Alsace; Eschau field; Subsurface; porosity;
 Statistical methods
 Section Headings: 29 (ECONOMIC GEOLOGY, ENERGY SOURCES)

743338 75-08774
Stability and Earth Pressures
 Lee, I. K.; Herington, J. R.
 In Soil Mechanics: New Horizons, p. 205-236, illus.,
 Amer. Elsevier Publ. Co., Inc. New York, 1974
 Subfile: B
 Languages: English
 Descriptors: *Engineering geology; *Soils; Soil mechanics;
 Engineering properties; Stability; stress; velocity;
 fields; techniques; Statistical methods; slope; analysis;
 rigid; structures
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

742853 75-08270
**The relative degree of influence of landform, geology and
 vegetation upon the stability of slopes**
 Ohmori, Hiroo.
 Geogr. Rev. Jap. Vol. 47, No. 10, p. 633-652 (Jap.; Engl.
 sum.), illus. (incl. geol. sketch maps), 1974
 CODEN: CRGHAD
 Subfile: B
 Doc Type: SERIAL
 Languages: Japanese
 Descriptors: *Engineering geology; *Geomorphology; Slope
 stability; Mass movements; Factors; landforms; vegetation
 ; areal geology; analysis; Statistical methods; Stability
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

743335 75-08771
Application of Statistics in Soil Mechanics
 Lumb, P.
 In Soil Mechanics: New Horizons, p. 44-111, illus.,
 Amer. Elsevier Publ. Co., Inc. New York, 1974
 Subfile: B
 Languages: English
 Descriptors: *Engineering geology; *Soils; Soil mechanics;
 Engineering properties; Applications; statistical methods;
 concepts; distribution; functions; variability;
 properties; sampling; theory; tests; controls; design
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

743332 75-08768
Soil Mechanics: New Horizons
 Lee, I. K. (ed.).
 Amer. Elsevier Publ. Co., Inc. 286 p., illus., New York,
 1974
 Subfile: B
 Languages: English
 Individual papers are cited in this Bibliography under the
 separate authors
 Descriptors: *Engineering geology; *Soils; Soil mechanics;
 Engineering properties; Compaction; stabilization;
 Applications; Statistical methods; properties; physical
 properties; unsaturated soils; analysis; settlements;
 elastic properties; foundations; pile driving
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

742902 75-08319
**Calcul statistique du volume des blocs matriciels d'un
 gisement fissuré**
 Statistical computing of matrix-block volume in a fissured

742244 75-07661

Predicting coarse sediment transport; the Hjulstrom curve revisited

Novak, Irwin D.

In *Fluvial Geomorphology*, p. 13-25, illus., State Univ. N.Y., Binghamton, New York, 1973

Subfile B

Languages: English
 Descriptors: *Sedimentation; *Sediments; *Engineering geology; *Geomorphology; *Transport; *Experimental studies; Environmental analysis; Fluvial features; Stream transport; erosion; deposition; coarse; velocity; prediction; floods; Hjulstrom curve; revision; theoretical studies; Statistical methods; streams; size; sorting; flume tank; mathematical studies
 Section Headings: 06 (PETROLOGY, SEDIMENTARY)

742126 75-07524

Propagation of Spartina alterniflora for substrate stabilization and salt marsh development

Woodhouse, W. W., Jr.; Seneca, E. D.; Broome, S. W. U. S. Army, Coastal Eng. Res. Cent., Tech. Memr., No. 46, 155 p., illus. (incl. sketch map), 1974

CODEN: XRTMAJ

Subfile B

Doc Type: SERIAL

Languages: English
 Descriptors: *Engineering geology; *North Carolina; *Environmental geology; *Plantae; *Shorelines; *Reclamation; *Floral studies; *Stabilization; *Marshes; *Development; United States; salt marshes; soils; transplanting; seeding; distribution; effects; statistical studies; Spartina alterniflora; coastal; Cedar Island; Snow's Cut
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

741850 75-07248

Statisticheskaya obrabotka dannykh laboratornykh ispytaniy porod; Obobshchennyye i raschetnyye pokazateli Statistical interpretation of laboratory test data of rocks; generalization and calculation parameters

Bondarik, G. K.

In *Spravochnik po inzhenernoy geologii; Gruntovedeniye*, p. 68-73, illus., Izd. Nedra, Moscow, 1974

Subfile B

Languages: Russian
 Descriptors: *Engineering geology; *Methods; *Statistical methods; applications; tests; interpretation
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

741284 75-06682

Nekotoryye metodologicheskiye voprosy primeneniya statisticheskikh metodov v inzhenerno-geologicheskikh issledovaniyakh

Some problems of methodology in applying statistical methods in engineering-geological investigations [abstr.]

Gorokhovskiy, V. M.

Mosk. Obo. Ispyt. Priro., Byull., Old. Geol., Vol. 49, No. 1, p. 157-158, 1974

CODEN: BMPGAK

Subfile B

Doc Type: SERIAL

Languages: Russian
 Descriptors: *Engineering geology; *Methods; *Statistical methods; applications
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

741207 75-06605

Ob osnovnoy zakonomernosti intensivnosti gazovykh vzryvov

A principal regularity in the intensity of gas explosions

Kovach, F.

Acta Geod. Geophys. Montan., Vol. 8, No. 3-4, p. 361-379 (incl. Eng. sum.), illus., 1973

CODEN: AGGM89

Subfile B

Doc Type: SERIAL

Languages: Russian
 Descriptors: *Mining geology; *Engineering geology; *Evaluation; *Geologic hazards; *Safety; *gas explosions; intensity; distribution; logarithmic; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

741060 75-06458

Rock Property Correlation, Crescent Mine, Idaho [abstr.]
Skinner, E. H.; Waddell, G. G.; McMillans, P. G.;
Scheibner, B. J.

In New Horizons in Rock Mechanics; Evening Session.

Symp. Rock Mech., Proc. No. 14, p. 754, 1973

CODEN: PSRMA6

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: Idaho; Engineering geology; Rock mechanics

; Crescent Mine; Stress; cores; statistical analysis;

physical properties; regression analysis; quartzite; United

States; Coeur d'Alene; Revett Quartzite

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

741036 75-06434

Rock structure design by failure probabilities

Lundquist, Robert G.; Heins, Robert W.

In New Horizons in Rock Mechanics; Underground Design and
Instrumentation.

Symp. Rock Mech., Proc. No. 14, p. 329-337, illus., 1973

CODEN: PSRMA6

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: Engineering geology; Rock mechanics

; Failure; pillars; safety; statistical methods; stress;

strength

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

740499 75-05897

Strukturnyye modeli v inzhenernoy geologii

Structural models in engineering geology

Rais, M. V.

Izd. Nedra 214 p., illus., Moscow, 1973

Subfile: B

Languages: Russian

Utilization of mathematical (structural) models for

consideration of micro-heterogeneous and macro-heterogeneous

rocks, experimental and theoretical investigations in applied

engineering geology

Descriptors: Engineering geology; Mathematical geology;

Textbooks; methods; Models; structural models;

applications; mathematical methods; statistical methods;

mathematical models; practice

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

740022 75-05420

Seismicity of Hong Kong

Lau, R.

Hong Kong, R. Obs., Tech. Note No. 33, 18 p., illus. (incl.

sketch maps), 1972

CODEN: HKONAK

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: Hong Kong; Earthquakes; Engineering geology

; Seismology; Asia; Seismicity; Swatow; 1918;

possibilities; probability; production; Seismic risk

Section Headings: 19 (GEOPHYSICS, SEISMOLOGY)

739564 75-05362

Variations in the significance of soil and testing
parameters on permeability at different stages of
consolidation
Tunay, Mehmet T.

In Proceedings of the Third Southeast Asian Conference on
Soil Engineering; Technical Session 4, Soil Testing, p.

247-261, illus.,

Southeast Asian Soc. Soil Eng. Hong Kong, 1972

Subfile: B

Languages: English

Descriptors: Engineering geology; Experimental studies;

Soils; consolidation; effects; permeability; factors;

clay minerals; abundance; granulometry; techniques; sample

preparation; interpretation; statistical methods;

correlation; regression analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

739022 75-04417

Environments of deposition on an offshore barrier sand bar, Moriches Inlet, Long Island, New York [with comments]
Mackenzie, Michael G.

In Barrier Islands, p. 222-235, illus. (incl. sketch maps), Dowden, Hutchinson & Ross Stroudsburg, Pennsylvania, 1973

Subfile: B
Languages: English
Bibliography: English, reprint of 1967 paper.
Identification of ancient barrier islands
Descriptive: New York; Sedimentation; Sediments;
Geomorphology; Engineering geology; Sedimentary petrology;
Transport; Clastics; Terrigenous; Shore features;
Shorelines; Barrier islands; Long Island; Moriches Inlet;
Marine transport; wind transport; littoral; erosion;
deposition; distribution; budget; size; concepts;
Atlantic Coastal Plain; Sand; environmental analysis; heavy
minerals; indicators; samples; granulometry; statistical
methods; Barrier bars; beaches; berms; dunes; swamps;
marshes; inlets; streams; bays; environment; maps;
United States
Section Headings: 06 (PETROLOGY, SEDIMENTARY)

739134 75-03729

Statistical studies of earthquakes associated with Lake Benmore, New Zealand
Adams, R. D.

In Seismic effects of reservoir impounding, Eng. Geol. Vol. 8, No. 1-2, p. 155-169, illus. (incl. sketch maps), 1974

CODEN: EGGDAG
Subfile: B
Doc Type: SERIAL
Languages: English
Descriptive: New Zealand; Engineering geology;
Earthquakes; Seismology; reservoirs; Observations;
Australia; dams; South Island; Lake Benmore; Surface;
water storage; impounding; effects; analysis; statistical
methods; data; pre-impounding; post-impounding; Benmore
Dam; microearthquakes; seismic sources; seismicity;
distribution; magnitude; causes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

739187 75-01569

Prognostication of landslides along the 3rd bend of the construction preventing landslides, Odessa
Zelinskii, I. P.; Cherkez, F. A.

In Geologiya uzbekizhskaya i dno Chernogo ta Azovskogo morya u mezkhakh UKSR,

Mizh. Resp. Nauk. Zbi. No. 7, p. 77-82 (with Engl., Russ. sum.), illus. (incl. sketch maps), 1974

Subfile: B
Languages: Ukrainian
Descriptive: USSR; Engineering geology; Slope stability
Landslides; Ukraine; Odessa; prevention; constructions;
design; statistical studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

734823 75-00204

A statistical network model and theory of porous media
Schopper, Jurgen R.

In Por Structure and Properties of Materials--Structure des Pores et Proprietes des Matériaux, Part 1; Models and Geometry of Pore Structure, p. A53-A72 (incl. Fr. sum.), Academia Prague, 1973

Subfile: B
Languages: English
Descriptive: Sedimentary rocks; Sediments; Engineering geology; Properties; Materials; Porosity; physical properties; mathematical models; measurements; theoretical studies
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

734094 74-39241

Engineering Geologic, Geophysical, Hydrologic, and Rock-Mechanics Investigations of the Straight Creek Tunnel Site and Pilot Bore, Colorado

Robinson, Charles S.; Lee, Fitzhugh T.
U. S. Geol. Surv., Prof. Pap. No. 815, 134 p., illus. (incl. colored geol. map 1:12,000), 1974

CODEN: XGPPA9
Subfile: B
Doc Type: SERIAL
Languages: English
Descriptive: Colorado; Engineering geology; Maps; Tunnels; United States; Clear Creek County; Straight Creek Tunnel; southwest; geologic sections; Site exploration; boreholes; pilot bore; rock mechanics; geophysical surveys; well-logging; hydrogeology; statistical analysis; data; areal geology
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

731237 74-36384

Anisotropy of physical properties in metamorphic rocks

Johnson, L. R.; Wenk, H.-R.

Tectonophysics Vol. 23, No. 1-2, p. 79-98, illus., 1974

CODEN: TCTOAM

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Metamorphic rocks; *Engineering geology; *Seismology; Properties; elastic waves; Rock mechanics; Physical properties; elastic properties; thermal properties; anisotropy; correlation; experimental studies; velocity; data; applications; exploration; geophysical methods; mantle; samples; Europe; Alps; Alpine; fabric; analysis; statistical methods

Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

729505 74-34649

Fabric changes in consolidated kaolin

McConnachie, I.

Geotechnique Vol. 24, No. 2, p. 207-222 (incl. Fr. sum.), illus., 1974

CODEN: GINQAB

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: Electron microscopy, quantitative analysis; Kaolin; experimental studies; consolidation; mechanism; observations; changes; fabric; microstructure; domains; dimensions; electron microscopy; statistical methods; quantitative analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

727330 74-32471

Statistical Tests for Preferred Orientation [abstr.]

Urdley, Richard M.; Gine, Evarist; Perkins, Priscilla C.

Eos (Am. Geophys. Union, Trans.) Vol. 55, No. 4, p. 419, 1974

CODEN: EOSTAJ

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Engineering geology; Rock mechanics; Preferred orientation; tests; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

727050 74-32191

Numerical Seismic Zoning and Seismic Stability [abstr.]

Caputo, Michele; Postpischl, Daniele.

Eos (Am. Geophys. Union, Trans.) Vol. 55, No. 7, p. 684, 1974

CODEN: EOSTAJ

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Seismology; *Earthquakes; *Engineering geology; Geological hazards; seismic risk; zoning; seismicity; mechanism; seismic sources; magnitude; seismicity; determination; statistical methods; numerical; effects

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

725017 74-30158

**Prelucrare si sinteza datelor hidrogeologice
Processing and synthesis of hydrogeologic data**

Gheorghe, Alexandru.

Ed. Ich. 419 p. (incl. Engl. sum.), illus. (incl. geol. map 1:400,000), Bucharest, 1973

Subfile: B

Languages: Romanian

Descriptors: *Hydrogeology; *Ground water; *Engineering geology; Methods; textbooks; Systems analysis; Statistical methods; lithofacies; permeability; Europe; Romania; hydrodynamics; models; faults; porosity; water resources; reservoirs; subsurface; recharge; aquifers; Romanian

Section Headings: 21 (HYDROGEOLOGY AND HYDROLOGY)

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

725001 74-30142

Zastosowanie analizy czynnikowej: sposob R do populacji
 geologicznej glin zwalowych z obszaru Szczecina i okolic
 Application of factor analysis, R-mode, to the study of
 geological populations of tills from Szczecin and its vicinity
 Lipinska, Nina. Vol. 22, No. 4, p. 153-156 (incl. Engl.,
 Przegl. Geol., 1974
 Russ. sum.). 1974
 CODEN: PRZGAL
 Subfile: B
 Doc Type: SERIAL
 Languages: Polish
 Descriptors: *Engineering geology; *Poland; *Sediments;
 Materials; properties; Clastics; terrigenous; Till;
 weight; specific weight; moisture; plasticity;
 granulometry; factor analysis; R-mode; Szczecin; grains;
 size; physical properties; statistical methods; Pleistocene;
 Europe; northwest
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

724650 74-29791

Engineering geologic map units for highway planning: a
 quantitative approach
 Edwards, Larry J.
 Annu. Highway Geol. Symp., Proc. No. 24, p. 37-59. illus.
 (incl. geol. sketch map), 1973
 CODEN: PAHGAG
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Descriptors: *Engineering geology; *soils; *Wyoming;
 Highways; Properties; Site exploration; planning; mapping;
 evaluation; sedimentary rocks; engineering properties;
 surveys; statistical methods; texture; grains; size;
 distribution; mineral composition; variations; limits;
 applications; aerial photography; photogrammetry; maps;
 profiles; Kaycee; Garnum; Johnson County; quantitative;
 objectives; construction; United States
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

722276 74-27417

On the chance of culvert washouts on a long railway line
 Ribeny, F. M. J.
 In Hydrology Papers 1971, p. 55-59. illus.,
 Inst. Eng. Sydney, 1971
 Subfile: B
 Languages: English
 Descriptors: *Australia; *Engineering geology; *Geologic
 hazards; floods; washouts; prediction; arid regions;
 statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

718815 74-23952

On the variance of the stationary probability vector for a
 finite dam
 Jarvis, C. L.
 J. Hydrol., Vol. 21, No. 3, p. 291-297, 1974
 CODEN: JHYDA7
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Descriptors: *Engineering geology; Dams; Theoretical
 studies; statistical methods; hydrology; models
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

718098 74-23235

Firm reservoir yield; how reliable are historic hydrological
 records
 Wallis, James R.; O'Connell, P. Enda.
 In International Symposium on the Hydrology of Lakes,
 Int. Assoc. Hydrol. Sci.--Assoc. Int. Sci. Hydrol., Bull.
 Vol. 18, No. 3, p. 347-365 (incl. fr. sum.), illus., 1973
 CODEN: HYSDAY
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Statistical analysis
 Descriptors: *Engineering geology; Reservoirs; Design;
 yield; prediction; statistical methods; automatic data
 processing
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

717926 74-23062

A statistical model for determining the sediment yields from urban and rural landscapes along Breakneck Creek, Portage and Stark Counties, Ohio [abstr.]
 Smith, Harris T.

In North-Central Section, 8th Annual Meeting.

Geol. Soc. Am., Abstr., Vol. 6, No. 6, p. 546-547, 1974

CODEN: GAAPBC

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: Ohio; Engineering geology; Waterways;

Stark County; Portage County; Breakneck Creek; Streams;

Sediments; Load; measurement; statistical methods; United States

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

717638 74-22774

K voprosu o statisticheskoj obrabotke dannyh fizicheskikh svoystv gornyh porod
 Statistical survey data on the physical properties of rocks

Minasyan, R S

Akad. Nauk Arm. SSR, Izv., Nauki Zemle Vol. 24, No. 1, p.

85-87, illus., 1971

CODEN: IAAZAT

Subfile: R

Doc Type: SERIAL

Languages: Russian

Descriptors: Engineering geology; Geophysical methods;

Rock mechanics; Electrical methods; Igneous rocks;

Volcanic; statistical methods; experimental studies;

Theoretical studies; interpretation; electrical surveys;

Graphs; physical properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

717123 74-22259

Bentonite characteristics from deposits near Rosalind, Alberta
 Scafe, D. W.

Clays Clay Miner., Vol. 21, No. 6, p. 437-449 (incl. Fr.,

Ger., Russ. sum.), illus. (incl. sketch map), 1973

CODEN: CIGMAR

Subfile: R

Doc Type: SERIAL

Languages: English

Descriptors: Alberta; Bentonite; Engineering geology;

Economic geology; Canada; Materials; properties; Rosalind

; Battle River; Cretaceous; physical properties;

variations; composition; mineralogy; geochemistry;

analysis; statistical methods

Section Headings: 26 (ECONOMIC GEOLOGY, GENERAL & MINING)

716571 74-21705

Application of Factor Analysis to Classification of Engineering-Geological Environments

Wiatr, Irena; Stenzel, Przemyslaw.

Int. Assoc. Math. Geol., J., Vol. 6, No. 1, p. 17-31, illus.

(incl. sketch maps), 1974

CODEN: IMGURS

Subfile: B

Doc Type: SERIAL

Languages: English

Soils; cluster analysis; automatic data processing

Descriptors: Engineering geology; soils; Methods;

Engineering properties; Statistical methods; cluster

analysis; factor analysis; site exploration; classification

; automatic data processing; Soil mechanics

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

715489 74-20623

Statistical description of observed low-rise building damage for low amplitude ground motions [abstr.]

Scholl, Roger E.; Blume, John A.

In Cordilleran Section, 70th Annual Meeting.

Geol. Soc. Am., Abstr., Vol. 6, No. 3, p. 310, 1974

CODEN: GAAPBC

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: United States; Engineering geology; Nuclear

explosions; southwest; California; Nevada; Nevada Test

Site; Ground motion; buildings; damage

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

715438 74-20572

Hazard exposure [abstr.]

Chou, I. H.

In Cordilleran Section, 70th Annual Meeting.

Geol. Soc. Am., Abstr. Vol. 6, No. 3, p. 288, 1974

CODEN: GAAPBC

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Engineering geology; *Earthquakes; *Geologic

hazards; Prediction; *Probability; models

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

714831 74-19965

Statistical analysis of low-rise building damage caused by the San Fernando earthquake

Scholl, Roger E.

Seismol. Soc. Am., Bull. Vol. 64, No. 1, p. 1-23, illus.

(incl. sketch maps), 1974

CODEN: BSSAAP

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *California; *Engineering geology; *Earthquakes

; United States; San Fernando; Glendale; 1971; effects;

ground motion; buildings; damage; analysis; statistical

methods; Los Angeles County

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

714731 74-19865

Earth hazards

Hill, Mary R.

Calif. Div. Mines Geol., Miner. Inform. Serv. Vol. 18, No.

4, p. 57-59, 1965

CODEN: CDMJAR

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Engineering geology; *Geologic hazards;

Disasters; statistics; global

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

712661 74-17795

A numerical classification of selected landslides of the debris slide-avalanche-flow type

Blong, R. J.

Eng. Geol., Vol. 7, No. 2, p. 99-114, illus., 1973

CODEN: EGGDAD

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *New Zealand; *Engineering geology;

*Geomorphology; Slope stability; Mass movements;

Landslides; North Island; debris slide; avalanches; flows;

graywacke; classification; statistical methods;

Australasia

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

711542 74-16676

Complete Comparator Calibration

Fritz, Lawrence W.

U. S. Dep. Commer., Natl. Oceanic Atmos. Admin., Tech. Rep.

No. NDS 57, 96 p., illus., 1973

CODEN: NOAA86

Subfile: B

Doc Type: SERIAL

Languages: English

Discussion of statistics for photogrammetric grid system,

computer program in Fortran

Descriptors: *Oceanography; *automatic data processing;

*Engineering geology; Methods; Statistical methods;

photogrammetry; grids; comparator calibration; programs;

Fortran

Section Headings: 07 (MARINE GEOLOGY AND OCEANOGRAPHY)

710290 74-15424

Stress analysis and slope stability in strain-softening materials [discussion]

Menzies, B. K.

Geotechnique, Vol. 23, No. 4, p. 595-596, 1973

CODEN: GINDAR

Subfile: B

Doc Type: SERIAL

Languages: English

For reference to paper by K. Y. Lo and C. F. Lee, see

Geotechnique, Vol. 23, No. 1, p. 1, 1973

Descriptors: *Engineering geology; Slope stability;

Theoretical studies; failure; stress; statistical methods;

automatic data processing

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Seismic Probability?
 Barnhart, John T.; Slosson, James E.
 In **Geology, seismicity, and environmental impact**, p. 253-256, sketch map.
 Assoc. Eng. Geol., Los Angeles, 1973
 Subfile: B
 Languages: English
 Descriptors: California; Engineering geology; Faults; Geologic hazards; Distribution; San Fernando Valley; Northridge Hills Fault; displacements; earthquakes; possibilities; Patterns; seismicity; south; Los Angeles County
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

706014 74-11131

O zavisimosti mezhdu soprotivleniyem sdvigu i vertikal'nyy deviyem lessovykh porod na territorii g. Tashkenta
 Relationship between shear strength and vertical pressure in loessal rocks of the Tashkent region
 Aliyev, N. A.; Khudayberganov, A. M.

In **Seysmologiya i seysmogeologiya Uzbekistana**, p. 179-186.
 Akad. Nauk Uz. SSR, Inst. Seysmol. Tashkent, 1971
 Subfile: B
 Languages: Russian
 Equations for calculating viscosity and cohesion, values of shear strength for pressures 0.1-3.0 kg/cm².
 Descriptors: USSR; Engineering geology; Soils; Soil mechanics; Engineering properties; Uzbekistan; Tashkent; Shear strength; loss; relation; pressure; vertical; Statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

708496 74-13616
The statistical estimation of earthquake risk
 Vere-Jones, D.
 N. 2. Soc. Earthquake Eng., Bull., Vol. 6, No. 3, p. 122-127 1973
 CODEN: NZEBA3
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Descriptors: Engineering geology; Earthquakes; Seismic risk; prediction; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

707952 74-13070

Discussion of B. Kostak and M. U. Bielenstein's paper "Strength Distribution in Hard Rock"
 Glushko, V. T.; Rubets, G. T.
 Int. J. Rock Mech. Min. Sci., Vol. 10, No. 6, p. 763-766, illus., 1973
 CODEN: IJRMAS
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 For original paper see Int. J. Rock Mech. Min. Sci., Vol. 8, p. 501-521, 1971
 Descriptors: Engineering geology; Rock mechanics; Strength; deformation; distribution; statistical method
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

707551 74-12668

Ku studiu inzhiniersko-geologickaj rovnorodosti fizikalnych vlastnosti hornin
 A study of the engineering-geological homogeneity of the physical properties of rocks
 Modlitba, Igor.
 Mineral. Slovaca Vol. 2, No. 8, p. 315-322 (incl. Fr., Engl. sum.), 1970
 CODEN: MSLOBI
 Subfile: B
 Doc Type: SERIAL
 Languages: Slovakian
 Descriptors: Engineering geology; Rock mechanics; Physical properties; homogeneity; Rock investigation; Statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

706994 74-12111

The Northridge Hills and Associated Faults: A Zone of High

706012 74-11129
 Statisticheskaya obrabotka rezul'tatov opredeleniya
 soprotivleniya sdvigu lessovykh porod na territorii g.
 Tashkenta
 Statistical analysis of data on shear strength of loessal
 rocks in Tashkent
 Aliyev, N. A.; Khudaybergenov, A. M.

In Seismologiya i seysmogeologiya Uzbekistana, p. 163-167,
 Akad. Nauk Uz. SSR, Inst. Seysmol. Tashkent, 1971
 Subfile: B
 Languages: Russian
 Descriptors: USSR; Engineering geology; Soils; Soil
 mechanics; Engineering properties; Uzbekistan; Tashkent;
 Shear strength; Loess
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

703143 74-08247
 Vvedeniye v teoriyu geologicheskogo podobiya i
 modelirovaniya (Primeneniye prirodnykh analogov i
 kachestvennykh kriteriyev podobiya v geologii)
 Introduction to theory of geologic similarity and natural
 modelling; applications of natural analogs and quantitative
 criteria of similarity in geology
 Rozovskiy, L. B.
 Izd. Nedra 128 p., illus., Moscow, 1969
 Subfile: B
 Languages: Russian
 Classification of analogs and models, equations and
 parameters, methods defining dimensions of similarity for use
 in prediction, examples of applications: shoreline erosion,
 rates of sedimentation, slope stability, mineral exploration,
 flow scheme for automatic data processing
 Descriptors: Mathematical geology; Engineering geology;
 geomorphology; Mineral exploration; Textbooks; Landform
 evolution; Slope stability; Statistical methods;
 Similarity theory; Concepts; Models; Applications;
 Quantitative geomorphology; Erosion; Rates; Prediction;
 Methods; Similarity theory; Theoretical studies
 Section Headings: 15 (MISCELLANEOUS & MATHEMATICAL GEOLOGY)

703119 74-08223
 Statistical correlation of observed ground motion with
 low-rise building damage
 Scholt, Roger E.; Farhoomand, Iradj.
 Seismol. Soc. Am., Bull. Vol. 63, No. 5, p. 1515-1537,
 illus. (incl. sketch map), 1973
 CODEN: BSSAAP
 Subfile: B
 Languages: English
 Languages: English

Descriptors: Colorado; Engineering geology; Nuclear
 explosions; Rulison; Ground motion; correlation; damage;
 buildings; statistical methods; United States
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

700432 74-05535
 Prediction of peak ground motion from earthquakes [abstr.]
 Diphai, D. L.; Lahoud, J. A.
 Earthquake Notes Vol. 44, No. 1-2, p. 57, 1973
 CODEN: EAQNAI
 Subfile: B
 Languages: English
 Languages: English
 Descriptors: Engineering geology; Earthquakes; Effects
 of statistical methods; prediction; acceleration;
 attenuation; distance; focus; magnitude; comparison;
 nuclear explosions; Ground motion
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

700432 74-05534
 Statistical interpretation of earthquake duration
 Singh, J. P.; Donovan, N. C.
 Earthquake Notes Vol. 44, No. 1-2, p. 56-57, 1973
 CODEN: EAQNAI
 Subfile: B
 Languages: English
 Languages: English
 Descriptors: Engineering geology; Earthquakes; effects
 of statistical methods; determination; duration; strong
 motion; distance; epicenters; soils; applications;
 construction; magnitude; mechanism
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

700414 74-05516

Likelihood of strong-motion earthquakes [abstr.]

Chou, I. H.; Yao, J. T. P.; Zimmer, W. J.
Earthquake Notes Vol. 44, No. 1-2, p. 47-48, 1973
CODEN: EAQNAI

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Earthquakes; *Engineering geology;
Prediction: Statistical methods; mathematical models;
strong motion

Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Navada; *Engineering geology; Nuclear
explosions; Pahute Mesa; Yucca Flat; Spectra; response;
attenuation; distance; statistical methods; United States
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

698125 74-03228

A statistical study on the determination of the standard seismic intensity

Li, Chi-pin.
Sci. Geol. Sinica No. 3, p. 250-256 (Chin.; Engl. sum.).
illus., 1973
CODEN: SGSIAG

Subfile: B

Doc Type: SERIAL

Languages: Chinese

Descriptors: *Engineering geology; *Earthquakes; *Seismology
; Magnitude; Construction; seismicity; intensity;
analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

700413 74-05515

Time criteria, classification of fault activity & time-criteria risk [abstr.]

Taylor, Charles L.; Brogan, George E.; Cluff, Lloyd S.
Earthquake Notes Vol. 44, No. 1-2, p. 47, 1973
CODEN: EAQNAI

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Engineering geology; *Environmental geology;
Geologic hazards; Land use; Statistical methods;
classification; faults; movement; time; applications;
construction
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

700412 74-05514

Average regional seismic hazard index (ARSHI) [abstr.]

Howell, B. F., Jr.
Earthquake Notes Vol. 44, No. 1-2, p. 46-47, 1973
CODEN: EAQNAI

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *United States; *Seismology; *Earthquakes;
*Engineering geology; Prediction; Great Plains;
California; Coast Ranges; Statistical methods; seismic risk
; seismicity; geologic hazards
Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

700410 74-05512

Distance attenuation of response spectral data from underground nuclear detonations [abstr.]

Lynch, R. D.
Earthquake Notes Vol. 44, No. 1-2, p. 46, 1973
CODEN: EAQNAI

692606 73-31887
Simulation der Flüssigkeits- und Gasströmung in deformierbaren porösen Gesteinen unter Berücksichtigung der Abweichung vom Darcy-Gesetz; (Teil I-III); Teil I. Ermittlung der petrophysikalischen Parameter des Gesteins und deren Abhängigkeit von Ueberlagerungs- und Porenraumdruck; Ausgangsdaten fuer die mathematische Modellierung
With reference to the deviation from Darcy's law; (Parts 1-3); Part 1. Determination of the petrophysical rock parameters and their dependence on the overburden and pore pressure; Initial data for mathematical modeling
Hong, Werner; Haefner, Frieder; Foerster, Siegfried; Voigt, Hans Dieter.
Z. Angew. Geol., Vol. 19, No. 4, p. 168-174 (incl. Russ.). Engl. sum. 1, illus., 1973
CODEN: ZANGAK
Subfile: B
Doc Type: SERIAL
Languages: German
Descriptors: *Engineering geology; *Reservoirs; *Models; statistical methods; porosity; permeability; pore pressure; overburden pressure; equations; sandstone; Darcy's law; deviation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

688620 73-27899
Analisis numerico de un medio poroso elastoplastico
Numerical analysis of an elastoplastic rock medium
Canizo Perate, L. del; Sagaseta Millan, C.
In Geologia del Ingeniero, Congr. Hisp.-Luso-Am. Geol. Econ., [Trab.] No. 1, Secc. 5, p. 197-201, illus., 1971
CODEN: 26ZYAX
Subfile: B
Doc Type: SERIAL
Languages: Spanish
Descriptors: *Engineering geology; *Deformation; *Rock mechanics; *Experimental studies; *Statistical methods; Elasticity; plasticity; rocks; analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

687546 73-26825
Statisticheskaya model' poristoy sredy dlya opredeleniya elektro- i gidrosoprotivleniya
Statistical model of a porous medium; its application to the determination of electrical and hydrologic resistivities [abstr.]
Zaydel', A. R.; Dynkina, O. Ye.
Mosk. Obo. Ispyt. Priro., Byull., Otd. Geol., Vol. 48, No. 1, p. 149-150, 1973
CODEN: BMPGAK
Subfile: B
Doc Type: SERIAL
Languages: Russian
Descriptors: *Engineering geology; *Materials; properties; *Rocks; porosity; relation; permeability; electrical properties; models; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

689900 73-29180
Metodos matematicos en geologia aplicada
Mathematical methods in applied geology
Jimenez Salas, J. A. (ed.)
Congr. Hisp.-Luso-Am. Geol. Econ., Comun. (Relatos)--Comun. (Relatos) No. 1, p. 281-286, 1971
CODEN: 27ZBA5
Subfile: B
Doc Type: SERIAL
Languages: Spanish
Summation of several papers
Descriptors: *Engineering geology; *Methods; *Statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

688728 73-28007
A Coupled Stress-Flow Method of Analyzing Effects of Fluid Injection on Stress Distribution in Fractured Rocks [abstr.]
Witherspoon, P. A.; Taylor, R. L.; Maini, V. N.; Gale, J. F.; Ayatollahi, M. S.
Eos (Am. Geophys. Union, Trans.) Vol. 54, No. 1, p. 369, 1973
CODEN: EOT
Subfile: B
Doc Type: SERIAL

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

687081 73-26360

Analiz modeley raspredeleniya pokazateley mekhanicheskikh
svoystv gruntov v massive
Analysis of models of mechanical property parameter
distribution studied for soil layers

Titova, L. M.
Moscow, Univ., Vestn., Ser., Geol. Vol. 27, No. 1, p.
114-117, illus., 1972

CODEN: VMUGAR

Subfile: R

Doc Type: SERIAL

Languages: Russian

Descriptors: *Engineering geology; Materials; properties

; Clay; layers; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

686834 73-26113

Les cartes de localisation probable des avalanches
Probable avalanche location maps

Cazabat, Charles.

Soc. Fr. Photograph., Bull., No. 48, 41 p. (incl. Eng.).

Ger. sum., illus., 1972

CODEN: BFGA5

Subfile: B

Doc Type: SERIAL

Languages: French

Geologic hazards; photointerpretation; France

Descriptors: *France; *Engineering geology; *maps;

*Geomorphology; Geologic hazards; Cartography; Mass

movements; Alps; Pyrenees; Avalanches; photogeology;

probability; Europe

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

686802 73-26081

Les caracteristiques hydrauliques du massif de fondation du
barrage de Grand-Maison (Isere)

The hydraulic characteristics of the foundation of the

Grand-Maison Dam, Isere, France

Louis, C.

Fr., Bur. Rech. Geol. Minieres, Bull. (Ser. 2), Sect. 3 No.

4, p. 13-37, illus. (incl. geol. sketch map), 1972

CODEN: FBBIAM

Subfile: B

Doc Type: SERIAL

Languages: French

Site geology; fractures, water situation, hydraulic

conductivity; models

Descriptors: *France; *Engineering geology; *fractures;

Dams; Distribution; foundations; Isere; Grand Maison Dam;

hydraulics; stability; models; Patterns; analysis;

statistical methods; Europe

686306 73-25585

Determination of the Center of the Distribution of Collapsed
Houses

Sato, Yasun; Kotake, Yoshiko.

Zisin (Seismol. Soc. Jap., J) Vol. 25, No. 3, p. 254-262

(Jap.; Eng. sum.), sketch maps, 1972

CODEN: ZISIA5

Subfile: B

Doc Type: SERIAL

Languages: Japanese

Theoretical studies; least-squares analysis; destruction

related to focal depth

Descriptors: *Earthquakes; *Engineering geology; *Seismology

; Effects; Theoretical studies; statistical methods;

relation; hypocenters; epicenters; least-squares analysis;

buildings; damage

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

683055 73-22332

Examinarea statistica a indicelui de consistenta a rocilor
argiloase

Statistical study of the liquefaction index of clays

Florea, Mircea; Popovici, Alina; Boboc, Justin.

Rom., Inst. Pet. Gaze Geol., Bul., Geol. Teh. Vol. 19, p.

39-45 (incl. Eng., Russ. sum.), illus., 1972

CODEN: BIPGAO

Subfile: B

Doc Type: SERIAL

Languages: Romanian

Descriptors: *Engineering geology; *Romania; *Cenozoic;

Materials; properties; Europe; Clays; shale;

liquefaction; index; upper Cenozoic

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

682873 73-22150

Verfahren zur Bestimmung des Benetzungszustands des Speichergersteins in Erdoellagerstaetten
Method for determining the oil wetting state of reservoir rocks

Erhse, Walter.
Z. Angew. Geol., Vol. 19, No. 2, p. 86-88 (incl. Russ., Engl. sum.), illus., 1973
CODEN: ZANGAK
Subfile: B
Doc Type: SERIAL
Languages: German
Statistical method
Descriptors: *Engineering geology; *Petroleum; Reservoirs; properties; wetting; analysis; statistical methods; measurement
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

681904 73-21180

Stress analysis and slope stability in strain-softening materials

Lo, Kuan Yee; Lee, Chack Fan.
Geotechnique Vol. 23, No. 1, p. 1-11 (incl. Fr. sum.), illus., 1973
CODEN: GINQAB
Subfile: B
Doc Type: SERIAL
Languages: English
Computer programs (finite element)
Descriptors: *Automatic data processing; *Engineering geology; *Reformation; Slope stability; Theoretical studies; stress; analysis; failure; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

680013 73-19288

The origin of porosity in sandstones

Knoring, L. D.
Acad. Sci. USSR, Dokl., Earth Sci. Sect. Vol. 201, No. 1-6, p. 223-225, illus., 1972
CODEN: DMESA9
Subfile: B
Doc Type: SERIAL
Languages: English
Descriptors: *Sedimentary rocks; *Engineering geology; Clastics; terrigenous; properties; Materials; Sandstone; textures; porosity; analysis; statistical methods; genesis
Section Headings: 06 (PETROLOGY, SEDIMENTARY)

676850 73-16125

NMR Relaxation of ⁷Li and ¹H in Appalachian Petroleum Reservoir Rocks Containing LiCl Solution

Headley, L. C.
Nature: Phys. Sci., Vol. 242, No. 119, p. 87-88, illus., 1973
CODEN: NPSCA6
Subfile: B
Doc Type: SERIAL
Languages: English
Experimental studies, statistical analysis, sandstone cores
Descriptors: *Appalachians; *Petroleum; *Engineering geology; *Economic geology; North America; Materials; properties; reservoir rocks; permeability; indicators; experimental studies; nuclear magnetic resonance; sandstone; cores; statistical methods; automatic data processing
Section Headings: 26 (ECONOMIC GEOLOGY, GENERAL & MINING)

674816 73-14087

Probabilistic Analysis of Seepage

Wu, Tien H.; Vyas, Shyam K.; Chang, Nien-Yin.
Am. Soc. Civ. Eng., Proc., J. Soil Mech. Found. Div., Vol. 99, No. SM4, p. 323-340, illus. (incl. sketch maps), 1973
CODEN: JSFEAQ
Subfile: B
Doc Type: SERIAL
Languages: English
Alluvial deposits, aquifers, fluvial hydraulics, glacial deposits, models, statistics, soil mechanics, Mississippi River
Descriptors: *United States; *Engineering geology; Seepage; *Mississippi River; Analysis; statistical methods; soil mechanics; aquifers
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

67J72 73-13043

Zakonomenosti prostranstvennoy izmenchivosti svoystv period
ikh ispol'zovaniye v inzhenernoy geologii
Regularities of spatial variability in properties of rocks
and their use in engineering geology
Bondarik, G. K.

In Gidrotekhnologiya i inzhenernaya geologiya (Doklady
Sovetskikh Geologov),
Int. Geol. Congr., Proc., Congr. Geol. Int., Programme No.
24, p. 93-101 (incl. Engl. sum.), illus., 1972

CODEN: ICGGAD

Subfile: B

Doc Type: SERIAL
Languages: Russian
Rep. Sov. Geol., Sect. 11, 13, Symp. 1, Izd. Nauka, Moscow.
Descriptors: Engineering geology; Materials; properties
Changes; spatial; prediction; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

672005 73-11275

Approximate Solution for Unconfined Seepage

Desai, Chandrakant S.
Am. Soc. Civ. Eng., Proc., J. Irrig. Drain. Div., Vol. 99,
No. 171, p. 71-86, illus., 1973

CODEN: JRCE44

Subfile: B

Doc Type: SERIAL
Languages: English
Drainage, finite element method, free surfaces, numerical
analysis, one-dimensional flow, transient flow
Descriptors: Engineering geology; Seepage; Flow;
drainage, unconfined; analysis; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

668454 73-07718

Methodische Untersuchungen zur Charakterisierung von
Speichersteinen auf mathematisch-statistischer Grundlage
Characteristics of reservoir rocks on a statistical basis

Rasemann, Winfried.
Dtsch. Ges. Geol. Wiss., Ber., Reihe A, Geol. Palaeontol.
Vol. 17, No. 1, p. 49-58, illus., 1972

CODEN: BNGP47

Subfile: B

Doc Type: SERIAL
Languages: German
porosity and permeability of Buntsandstein, models, analogs.
Germany
Descriptors: Germany; Engineering geology; Sedimentary
rocks; Triassic; Reservoirs; Clastics; Permeability;
Europe; Thuringian forest; Engineering properties;

porosity; permeability; models; Sandstone; analysis;
statistical methods; Runtel
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

668115 73-07379

Finite Element Analysis of Crack Initiation in a Block Model
Experiment

De Rouvray, A. L.; Goodman, R. E.
Rock Mech., Vol. 4, No. 4, p. 203-223 (incl. Ger., Fr.
sum.), illus., 1972

CODEN: RMFMAS

Subfile: B

Doc Type: SERIAL
Languages: English
Descriptors: Engineering geology; Fractures; Deformation
; Rock mechanics; Experimental studies; Style; models;
Joints; finite element analysis; stress; statistical
methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

666126 73-05391

Stratigraphic Succession and the Physico-mechanic Nature of
"Kvanto Lom", Detected by means of R. I. Logging

Kanal, Takao.
Jap. Geol. Surv., Bull., Vol. 23, No. 1, p. 15-35 (Jap.;
Engl. sum.), illus. (incl. sketch maps), 1972

CODEN: JGSBAW

Subfile: B

Doc Type: SERIAL
Languages: Japanese
Gamma ray and neutron logging, soil mechanics, Japan
Descriptors: Japan; Geophysical surveys; Soils;
Engineering geology; Quaternary; Igneous rocks;
Radioactivity surveys; Asia; soil mechanics; Engineering
properties; Pyroclastics and glasses; Honshu; Kwantto;
Shimosa; Omiya; ground; volcanic ash; Interpretation;
Lithostratigraphy; statistical methods
Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

663797 73-03062

Analysis of rock slopes using the finite element method

Yu, Y. S.; Coates, D. F. *Resources, Mines Br., Res. Rep.* No. 229, 74 p. (with Fr. sum.). illus., 1971
CODEN: CMRRC8

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Engineering geology; *Deformation; Slope stability; Theoretical studies; Rock mechanics; Statistical methods; Stress

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Damage and risk analysis for the Greater San Francisco Bay area due to earthquake loading
Shah, Hareesh C.; Datal, Jagat S.

In Microzonation Conference, Vol. 2, p. 871-882, illus. (incl. sketch maps),
Wash., Univ. Seattle, 1972

Subfile: B

Languages: English

Seismicity, probabilities of peak ground acceleration as function of time, ground motion frequency, seismic load criteria, California

Descriptors: *California; *Engineering geology; *Earthquakes; *Seismology; United States; San Francisco Bay; Geologic hazards; seismicity; statistical methods; effects; ground motion

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

663103 73-02368

Analysis of Completeness of the Earthquake Sample in the Puget Sound Area and Its Effect on Statistical Estimates of Earthquake Hazard
Stopp, J. C.

In Microzonation Conference, Vol. 2, p. 897-909, illus. (incl. sketch map),
Wash., Univ. Seattle, 1972

Subfile: B

Languages: English

1870-1969, fitting frequency formula to biased samples, Washington

Descriptors: *Washington; *Engineering geology; *Earthquakes; *Seismology; United States; Puget Sound; History; Analysis; 1870-1969; distribution; frequency

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

663082 73-02347

Statistical analysis of 1971 San Fernando earthquake ground-motion data
Liu, S. C.

In Microzonation Conference, Vol. 2, p. 851-862, illus.,
Wash., Univ. Seattle, 1972

Subfile: B

Languages: English

Correlation, amplification and attenuation statistics, estimation procedures, California

Descriptors: *California; *Engineering geology; *Earthquakes; United States; San Fernando; Effects; ground motion; statistical methods; 1971

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

663085 73-02350

Forecasting the risk inherent in earthquake resistant design
Shah, H. C.; Vagliente, V. N.

In Microzonation Conference, Vol. 2, p. 893-707, illus.,
Wash., Univ. Seattle, 1972

Subfile: B

Languages: English

Probability of earthquake occurrence, Markov Chain model, San Francisco Bay, California

Descriptors: *California; *Engineering geology; *Earthquakes; United States; San Francisco Bay; Geologic hazards; probability; statistical methods; occurrence

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

661084 73-02349

662695 73-01960
Influence of Topography on the Pre-Mining State of Stress
Pariseau, V. G.
Can. Rock Mech. Symp., Proc. No. 7, p. 191-195, illus., 1972
CODEN: PCRSBF
Subfile: B
Doc Type: SERIAL
Languages: English
Finite element technique, simulated erosional sequence, non-uniform stress
Descriptors: *Engineering geology; *Deformation; *mining geology; *geomorphology; *Experimental studies; *Landform evolution; *Methods; *Stress; *Topography; *models; statistical methods; applications
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

662104 73-01368
A Statistical Method for the Design of Rock Slopes
McMahon, B. K.
Aust. N.Z. Conf. Geomech., Proc. No. 1, Vol. 1, p. 314-321, illus., 1971
CODEN: PAZCAQ
Subfile: B
Doc Type: SERIAL
Languages: English
Joints, statistical analysis, slope stability, probability of failure
Descriptors: *Engineering geology; *fractures; *Slope stability; *Style; *Rock mechanics; *joints; *statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

662096 73-01960
Estimating the Strength of Jointed Soils
Lumb, P.
Aust. N.Z. Conf. Geomech., Proc. No. 1, Vol. 1, p. 175-179, illus., 1971
CODEN: PAZCAQ
Subfile: B
Doc Type: SERIAL
Languages: English
Residual soils, sampling, shear strength, statistical analysis, examples from Hong Kong
Descriptors: *Engineering geology; *Hong Kong; *Fractures; *Deformation; *Soil mechanics; *Style; *Field studies; *Statistical methods; *joints; *soils; *shear strength; *fracture strength; Asia
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

662691 73-01956
A Study of the Causes of Roof Instability in the Pittsburgh Coal Seam
Parsons, Roger C.; Dahl, H. D.
Can. Rock Mech. Symp., Proc. No. 7, p. 79-89, illus., 1972
CODEN: PCRSBF
Subfile: B
Doc Type: SERIAL
Languages: English
Geological factors, geometrical factors, discriminant analysis, regression analysis, regional stress field, finite element analysis, West Virginia
Descriptors: *West Virginia; *Engineering geology; *Deformation; *Land subsidence; *Field studies; *north; *tunnels; *rock mechanics; *Compaction; *statistical methods; coal; United States
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

662537 73-01802
Problema terenuilor nisipoase si importante ei in problema de drenaj
Sandy ground pore-size distribution and its significance in drainage problems
Gheorghe, Alex.
Rom. Inst. Pet. Gaze Geol., Bul., Geol. Teh. Vol. 18 (1971), p. 61-75 (incl. Engl., Russ. sum.), illus., 1972
CODEN: BIPCAQ
Subfile: B
Doc Type: SERIAL
Languages: Romanian
Suction and thin section studies, structural factors, statistical methods, ground water
Descriptors: *Engineering geology; *Materials; properties

662537 73-01802
Problema terenuilor nisipoase si importante ei in problema de drenaj
Sandy ground pore-size distribution and its significance in drainage problems
Gheorghe, Alex.
Rom. Inst. Pet. Gaze Geol., Bul., Geol. Teh. Vol. 18 (1971), p. 61-75 (incl. Engl., Russ. sum.), illus., 1972
CODEN: BIPCAQ
Subfile: B
Doc Type: SERIAL
Languages: Romanian
Suction and thin section studies, structural factors, statistical methods, ground water
Descriptors: *Engineering geology; *Materials; properties

Possible applications of the finite element method to rock mechanics

660883 73-00145
Filcek, Henryk; Walaszczyk, Jan.
Akad. Gorn.-Hutn. (Krakow). Zesz. Nauk. No. 322 (Gorn. No. 36), p. 7-28 (incl. Engl., Russ. sum.). illus., 1972
CODEN: ZNAGAC
Subfile: B
Doc Type: SERIAL
Languages: Polish
Descriptors: *Engineering geology; *Rock mechanics;
Statistical methods; finite element analysis; applications
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

653793 72-35103

Development of the Saskatchewan Computerized Well Information System, 1964-1971
Butler, J. V.

In Computer-Based Storage, Retrieval and Processing of Geological Information--Storage, recuperation et traitement des données géologiques par ordinateur, Section 18.
Int. Geol. Congr., Proc., Congr. Geol. Int., Programme No. 24, p. 97-102, 1972
CODEN: IGGGAD
Subfile: B
Doc Type: SERIAL
Languages: English
Geologic and engineering information
Descriptors: *Well-logging; *Automatic data processing;
*Saskatchewan; *Mineral resources; *Mineral exploration;
General; Canada; Statistical methods; Engineering geology;
Exploration; Systems
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

660883 73-00145
Numerical statistics in engineering geology
Muspratt, M. A.
Eng. Geol. Vol. 6, No. 2, p. 67-78, illus., 1972
CODEN: EGGGAD
Subfile: B
Doc Type: SERIAL
Languages: English
Factor analysis, categorization, pattern-recognition
algorithm, Monte Carlo simulation, applications
Descriptors: *Engineering geology; *Automatic data processing; *Methods; Statistical methods; models;
simulation; applications; factor analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

657767 72-39089

On the statistical seismic design determining the optimum dynamic characteristics of structure (continued)
Kobori, Takuji; Minal, Ryochiro; Kawano, Masahiro.
Kyoto Univ., Disaster Prev. Res. Inst., Ann. No. 14A, p. 315-332 (Jap.; Engl. sum.), illus., 1971
CODEN: KDBKAW
Subfile: B
Doc Type: SERIAL
Languages: Japanese
Descriptors: *Engineering geology; *Earthquakes; Effects
buildings; models; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

657218 72-38540

Un metodo grafico per la valutazione della franosità
Graphic method to determine the regional landslide probability
Lucini, Paolo.
Naples, Univ., Ist. Geol. Appl., Mem. Note Vol. 11, Part 1, 14 p. (incl. Engl. sum.), illus., 1969
CODEN: MGNAB
Subfile: B
Doc Type: SERIAL
Languages: Italian
Method based on comparison of geologic and slope maps
Descriptors: *Engineering geology; Slope stability;
Landslides; prediction; methods; interpretation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

657094 72-38416

O moztivovaciach stosovanis metody elementov si onczonych v mechenice gorotvoru

652252 72-33561
Exploration : General: Canada: Methods: Statistical
methods. Engineering geology : Systems
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Interpretation statistique des essais en laboratoire sur les
roches

Statistical interpretation of laboratory tests on rocks
[with discussion]

Robinson, E. V.; Finnie, L.

In Colloque de geotechnique, p. [1]87-104 (incl. Fr. sum.).

Inst. Natl. Sci. Appl. Toulouse, 1971

Subfile: B

Language: French

Extreme-flaw theory of brittle failure. Weibull
Distribution, applications to genesis of fractures, models
Descriptors: *Engineering geology; *deformation; *fractures
; Rock mechanics; theoretical studies; Genesis; Flaws;
extreme; statistical methods; models; applications
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

651413 72-32722

Informatii suplimentare cu privire la terenul loessoid de pe
teritoriul unuilor, obtinute prin prelucrarea statistica a
fondului existent de date geotehnice

Additional information about a loess soil from a city,
obtained by statistical processing of the existing fund of
geotechnical data

Bally, R. J.; Martian, Felicia; Iordache, Gh.

Rom. Inst. Cercet. Imbinatatini Functionale Pedol., An. Ser.
Hidroteh. Vol. 3 (1969), p. 287-311 (incl. Engl., Fr., Russ.
sum.), illus., 1970

CODEN: AIIH81

Subfile: B

Doc Type: SERIAL

Language: Romanian

Descriptors: *Gulls; *automatic data processing;
Engineering geology; Engineering properties; loess; Soil
mechanics; Europe

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

650938 72-32247

The development of a computerized well information system,
1964-1971 [abstr.]

Buller, John V.

Int. Geol. Congr. Abstr.,--Congr. Geol. Int., Resumes No.
24, p. 458, 1972

CODEN: IGAB8Y

Subfile: B

Doc Type: SERIAL

Language: English

Descriptors: *Well-logging; *Automatic data processing;
*Saskatchewan; *Mineral resources; *Economic geology; *Mineral

646340 72-27582

Some thoughts on estimating spillway design flood

Biswas, Asit K. Hydrol., Bull. Vol. 16, No. 4, p. 63-72
(incl. Fr. sum.), 1971

CODEN: BIAHAM

Subfile: B

Doc Type: SERIAL

Language: English

Descriptors: *Engineering geology; Dams; Spillways;
design; theoretical studies; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

645067 72-26300

Statistical Relationships Between Geotechnical Properties of
Gulf of Mexico Sediments

Bryant, William R.; Trabant, Peter K.

In Offshore Technology Conference, Fourth Annual, Preprints,
Vol. 2, p. 383-388, illus. (incl. sketch map),
Offshore Tech. Conf. Dallas, Texas, 1972

Subfile: B

Language: English

Descriptors: *Gulf of Mexico; *Engineering geology;
*Sediments; Materials; Properties; Engineering properties

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

643175 72-24408

Statistical Approximation for Consolidation Settlement

Elmaghr, Hameed A.; Krizek, Raymond J.
Highw. Res. Rec. (Nat. Res. Council-Nat. Acad. Sci.-Nat.
Acad. Eng. Publ.) No. 323, p. 87-96, illus., 1970

CODEN: HIRRAY

Subfile: B

Doc Type: SERIAL

Language: English

Descriptors: *Engineering geology; Soil mechanics;
Consolidation; analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

639513 72-20720

Statistical approach to the selection of the optimum dimensions of retaining walls

Klein, G. K.; Karavaev, V. N.
Soil Mech. Found. Eng. (New York, Engl. Ed.) Vol. 8, No. 1, p. 1-4, illus., 1971

CODEN: SMFEAF

Subfile: B

Doc Type: SERIAL

Languages: English

Translated from Osnovaniya, Fundamenty i Mekhanika Gruntov, No. 1, p. 1-3, 1971

Descriptors: *Engineering geology ; Methods ; Foundations ; statistical methods

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

636962 72-18099

Two-variate Exponential Distribution and Its Numerical Table for Engineering Application

Nagao, Masashi; Kadoya, Mutsumi.
Kyoto Univ., Disaster Prev. Res. Inst., Bull. Vol. 20, Part 3, p. 183-215, illus., 1971

CODEN: DPKBAN

Subfile: B

Doc Type: SERIAL

Languages: English

Theoretical studies, possible applications in river engineering, flood control, water resource management

Descriptors: *Hydrogeology; *Engineering geology; *water resources ; Methods ; Statistical methods; distribution; two-variate; applications

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

636956 72-18093

Probability of Levee Breaks Due to Heavy Rainfalls in a River

Ishihara, Yasuo; Seno, Kunio.
Kyoto Univ., Disaster Prev. Res. Inst., Bull. Vol. 20, Part 1, p. 37-50, illus., 1970

CODEN: DPKBAN

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Engineering geology ; Theoretical studies ; Levees; breaks; prediction

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Bed load transport as a probability problem

Einstein, Hans Albert.

In Sedimentation,

Privately published [C] 105 p., illus., Fort Collins, Colorado, 1972

Subfile: B

Languages: English

Experimental studies, sediments, mathematical treatment; English translation of D.Sc. thesis, Federal Institute of Technology, Zurich, Switzerland, 1937

Descriptors: *Engineering geology; *Hydrogeology; *Sediments ; *Sedimentation ; Waterways; transport; Concepts; Flow regime ; Bed load; mathematical studies

Section Headings: 06 (PETROLOGY, SEDIMENTARY)

636152 72-17242

Earthquake-risk mapping: space photographic and statistical approaches

Kedar, Ervin Y.; Hsu, Shin-yi.
Am. Soc. Photogram., Proc. No. 38, p. 54-71, illus. (incl. sketch maps), 1972

CODEN: ASPGCC

Subfile: B

Doc Type: SERIAL

Languages: English

Transverse ranges, California, case study area

Descriptors: *Engineering geology; *Earthquakes ; Detection ; Maps; prediction; photogrammetric studies

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

635512 72-16801

Finite element analyses of Port Allen Lock

Duncan, James M.; Clough, G. Wayne.
Am. Soc. Civ. Eng., Proc., J. Soil Mech. Found. Div. Vol. 97, No. 8, p. 1053-1068, illus., 1971

CODEN: JSFEAO

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Louisiana; *Engineering geology ; Waterways ; Port Allen Lock; Statistical methods; finite-element analysis; United States

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

636356 72-17446

635508 72-16597

Torsional stiffness of embedded footings

Kaldjian, Moses J.
 Am Soc. Civ. Eng., Proc., J. Soil Mech. Found. Div. Vol. 97, No. 7, p. 969-980, illus., 1971
 CODEN: JSFEAQ
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Descriptors: *Engineering geology; *Soils; Foundations; Engineering properties; Footings; stiffness; statistical methods; Soil mechanics; finite-element analysis
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

and experimental basins-Colloque sur les resultats des recherches sur les bassins representatifs et experimentaux, Int. Assoc. Sci. Hydrol., Publ. No. 96, p. 565-570 (incl. fr. sum.) illus., 1970
 CODEN: IHYPAM
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Statistical methods, Hungary
 Descriptors: *Hungary; *Engineering geology; *Water resources; Reservoirs; Europe; water storage; dimensioning; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

631650 72-12732

A Theory for the Shear Strength of Rockfill

Wilkins, J. K.
 Rock Mech. Vol. 2, No. 4, p. 205-222 (incl. Ger., Fr. sum.), illus., 1970
 CODEN: RMFMAS
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Descriptors: *Deformation; *Engineering geology; Theoretical studies; Rock mechanics; Shear strength; rock fill; statistical methods
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

An Analysis of Selected Landslides in Alameda and Contra Costa Counties, California

Waltz, J. P.
 Assoc. Eng. Geol. Bull. Vol. 8, No. 2, p. 153-163, illus. (incl. sketch map), 1971
 CODEN: ENGEAG
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Descriptors: *California; *Engineering geology; Slope stability; Landslides; Alameda County; Contra Costa County; Statistical methods; United States
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

631586 72-12668

**Ein Uebertragungsnetz zur kluftstatistik
A transmission net for crack statistics**

Stawmiller, L.
 Eng. Geol. Vol. 5, No. 4, p. 291-312 (incl. Engl. sum.), illus., 1971
 CODEN: EGGDAD
 Subfile: B
 Doc Type: SERIAL
 Languages: German
 Descriptors: *Engineering geology; Rock mechanics; Methods; transmission net
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

Creep Movements of an Urbanized Hillside

Singh, Avtar; Cousineau, Richard P.; Lockwood, R. Bruce.
 Assoc. Eng. Geol. Bull. Vol. 8, No. 2, p. 103-120, illus. (incl. sketch map), 1971
 CODEN: ENGEAG
 Subfile: B
 Doc Type: SERIAL
 Languages: English
 Laboratory and field studies; soil mechanics; Ventura, California
 Descriptors: *California; *Engineering geology; *Soils; Slope stability; soil mechanics; Engineering properties; Ventura; Experimental studies; field studies; statistical methods; Creep; United States
 Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

622087 72-03136

Control of reservoir dimensioning, using data of representative areas

Bukavazki, Gy.
 in Symposium on the results of research on representative

619864 72-00910

A Class of Probability Models for Littoral Drift

James, William R.

In Coastal Engineering Conference, 12th, Proc., Vol. 2, p.

831-837.

Am. Soc. Civ. Eng. New York, 1970

Subfile: B

Languages: English

Descriptors: *Sedimentation; *Engineering geology

Transport; Shorelines; Methods; measurement; drift;

Littoral; measurements

Section Headings: 06 (PETROLOGY, SEDIMENTARY)

study of the relationship among elastic wave velocity, density, and carbonate properties of rocks

Fil'shtinskiy, L. Ye.; Boyko, V. N.; Skulin, B. L.
Moscow, Univ., Vestn., Ser. Geol., Vol. 26, No. 1, p.
117-119, 1971

CODEN: VMUGAR

Subfile: B

Doc Type: SERIAL

Languages: Russian

Descriptors: *Sedimentary rocks; *Statistical methods;

*Engineering geology; Properties; Materials; Elastic;

density; composition

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

613241 71-32570

The statistical approach to fracture permeability [abstr.]

Snow, David T.

Geol. Soc. Am., Abstr. Vol. 3, No. 7, p. 712, 1971

CODEN: GAAPBC

Subfile: B

Doc Type: SERIAL

Languages: English

Descriptors: *Engineering geology; *Permeability;

*Statistical methods; *fractures; Methods; Statistical;

General

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

609072 71-28368

Probleme de prevision spatiale des proprietes geologiques des roches a la base des conceptions de la theorie de la variabilite

The problem of determining rock properties, based on the theory of variability

Bondarik, G.

Int. Assoc. Eng. Geol., Int. Congr., Proc. Vol. 2, p.

839-848 (incl. Eng. sum.), illus., 1970

CODEN: 002240

Subfile: B

Doc Type: SERIAL

Languages: French

Descriptors: *USSR; *Engineering geology; *Soils; *automatic

data processing; *Statistical methods; *Cartography;

Engineering properties; Methods; Interpretation;

applications; mapping; Variance analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

619863 72-00909

Processing and analysis of radioisotopic sand tracer (RIST) study data

Brinshear, H. R.; Arce, E. H.; Case, F. N.; Turner, P. A.; Duane, D. B.

In Coastal Engineering Conference, 12th, Proc., Vol. 2, p.

821-830, illus.,

Am. Soc. Civ. Eng. New York, 1970

Subfile: B

Languages: English

Descriptors: *Sedimentation; *Engineering geology; Methods

Shorelines; Statistical; computer; transport; analysis

Section Headings: 06 (PETROLOGY, SEDIMENTARY)

615736 71-35065

Probability of failure in earthworks [with discussion]

Lumb, Peter.

In Southeast Asian Conference on Soil Engineering, 2nd,

Proc., p. 139-148, illus.,

[Asian Inst. Tech.] [Bangkok], [1971]

Subfile: B

Languages: English

Descriptors: *Engineering geology; *soils; Theoretical

studies; Engineering properties; Foundations; earthworks;

failure

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

614996 71-34325

Primeneniye korrelyatsionnogo i regressivnogo analiza dlya izucheniya sootnosheniy mezhdu skorost'yu upriklkh voln, plotnost'yu i karbonatnost'yu gornyx porod
Application of correlation and regression analysis of the

600079 71-28325

Determination of geotechnical properties by geophysical measurements

Schott, J.
Int. Assoc. Eng. Geol., Int. Congr., Proc. Vol. 1, p.
301-310 (incl. fr. sum.), illus., 1970
CODEN 002240
Subfile: B

Doc Type: SERIAL
Languages: English
Descriptors: *Seismic methods; *Soils; *Seismology;
*Statistical methods; *Engineering geology; *Applications;
*Engineering properties; Elastic waves; *Experimental studies;
*Analysis; Properties
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

606428 71-25724

**K statisticheskoy opredeleniyu intensivnosti zemletreseniy
The statistical determination of earthquake intensities**

Shebalin, N. V.
In Vostochnaya Seismologicheskaya Komissiya, 10th. Trudy,
Vol. 2, p. 71-81 (incl. Engl. sum.), illus.,
Akad. Nauk SSSR, Sov. Geofiz. Kom. Moscow, 1970

Subfile: B
Languages: Russian
Descriptors: *Statistical methods; *Earthquakes;
*Engineering geology; *Seismology; *Magnitude; *Analysis;
Concepts: Statistical analysis; nomenclature
Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

603256 71-22547

Indirect determination of equations of topographic surfaces

Tamas, L.
Acta Geod. Geophys. Math., Vol. 5, No. 1-2, p. 121-128
(incl. Russ. sum.), illus., 1970
CODEN AGMR9

Subfile: B
Doc Type: SERIAL
Languages: English
Descriptors: *Geomorphology; *Automatic data processing;
*Statistical methods; *Engineering geology; *Mathematical
geology; *Methods; *Terrain analysis; equations
Section Headings: 23 (SURFICIAL GEOLOGY, GEOMORPHOLOGY)

600421 71-19711

A statistical study of the maximum ground motion in strong earthquakes [abstr.]

Goto, Hisao; Kameda, Hiroyuki.
Kyoto Univ., Disaster Prev. Res. Inst., Bull. Vol. 18, Part
5, p. 146, 1969
CODEN DPKBAN

Subfile: B
Doc Type: SERIAL
Languages: English
Descriptors: *Engineering geology; *Earthquakes;
Prediction; *Seismic risk; ground motion
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

600378 71-19668

Numerical analyses of landslide flow [abstr.]

Okumishi, Kazuo.
Kyoto Univ., Disaster Prev. Res. Inst., Bull. Vol. 18, Part
5, p. 54, 1969
CODEN DPKBAN

Subfile: B
Doc Type: SERIAL
Languages: English
Descriptors: *Engineering geology; *Landslides;
Aerophotographic; statistical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

595312 71-14593

On the statistical aseismic design determining the optimum dynamic characteristics of structure [abstr.]

Kobori, Takaji; Minai, Ryochiro; Kawano, Masahiro.
Kyoto Univ., Disaster Prev. Res. Inst., Bull. Vol. 19, Part
5, p. 104, 1970
CODEN DPKBAN

Subfile: B
Doc Type: SERIAL
Languages: English
Descriptors: *Engineering geology; *Earthquakes;
Construction; aseismic design
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

595294 71-14575

Study on two-variate gamma distribution and its engineering application; fundamental theory of two-variate exponential distribution [abstr.]

Nagao, Masashi; Kadoya, Mutsumi.
Kyoto Univ., Disaster Prev. Res. Inst., Bull., Vol. 19, Part 5, p. 64, 1970

CODEN: DPKRAN
Subfile: B

Doc Type: SERIAL
Languages: English

Descriptors: *Engineering geology; *Statistical methods; Theoretical studies; applications; flood control; systems analysis; skewed distribution
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

595281 71-14562

Information on inflows and rule for releasing water in system of reservoirs [abstr.]

Ishihara, Yasuo; Nagao, Masashi.
Kyoto Univ., Disaster Prev. Res. Inst., Bull., Vol. 19, Part 5, p. 44, 1970

CODEN: DPKBAN
Subfile: B

Doc Type: SERIAL
Languages: English

Descriptors: *Engineering geology; *Statistical methods; Reservoirs; water release; runoff variations; Analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

594855 71-14136

Seismicity and principal seismic effects

Molchan, G. M.; Keilis-Borok, V. I.; Vilkovich, G. V.

In UIC Symposium on geophysical theory and computers.
R. Astron. Soc., Geophys. J., Vol. 21, No. 3-4, p. 323-335, 1970

CODEN: GFOJAN
Subfile: B

Doc Type: SERIAL
Languages: English

Descriptors: *Seismic methods; *Earthquakes; *Engineering geology; Techniques; Energy; Seismicity; seismic risk; statistical methods
Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

594353 71-13634

Some statistical features of the relationship between Rocky

Mountain Arsenal waste disposal and frequency of earthquakes
Bardwell, George E.

In Engineering seismology; the works of man,
Eng. Geol. Case Hist., No. 8, p. 33-37, illus., 1970

CODEN: ERCHAH
Subfile: B

Doc Type: SERIAL
Languages: English

Fluid injection into fractured Precambrian gneiss reservoir, Denver area

Descriptors: *Colorado; *Engineering geology; *Earthquakes; *Statistical methods; *Wells and drill holes; Genesis; United States; waste disposal; Denver; Rocky Mountain Arsenal; correlation; disposal well; fluid injection; Regression analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

593038 71-12318

A statistical model of seismicity and an estimate of the basic seismic effects

Kantorovich, L. V.; Molchan, G. M.; Keilis-Borok, V. I.; Vilkovich, G. V.

Phys. Solid Earth (Engl. Ed.) No. 5, p. 320-328, illus. (incl. sketch map), 1970

CODEN: IPSEBO
Subfile: B

Doc Type: SERIAL
Languages: English

Descriptors: *Earthquakes; *Engineering geology; Theoretical studies; Seismicity; models; statistical; statistical models; statistical model; seismic risk
Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

588985 71-08212

**Programowanie badan geologiczno-inzynierskich metoda MOC
Use of MOC method--Polish variety of PERT method--in
engineering-geologic programming**

Thiel, Kazimierz.
Przegl. Geol., Vol. 15, No. 4, p. 175-181 (incl. Engl.,
Russ. sum.) illus., 1967

CODEN: PRZGAL

Subfile: B

Doc Type: SERIAL

Languages: Polish

Descriptors: *Engineering geology; *Statistical
methods; *Dams; *Niedzica; *Sromowce; programming; Program
evaluation

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

587047 71-06271

A statistical study of aftershock sequences

Renaldi, G.
Ann. Geofis., Vol. 22, No. 4, p. 359-397 (incl. Ital. sum.),
illus., 1969

CODEN: AGFRAI

Subfile: B

Doc Type: SERIAL

Languages: English

Confirmation of time-frequency law of hyperbolic decay,
magnitude stability law, and exponential magnitude-frequency
distribution

Descriptors: *Earthquakes; *Engineering geology; *Seismology
; *Crust; *Mantle; *Statistical methods; *Aftershocks;
Seismic sources; General; Frequency; crustal studies;
Statistical analysis; Movement

Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

585095 71-04279

**Einige Geräte und Techniken für die Rationalisierung
geostatistischer Arbeiten bei tektonischen und
felsmechanischen Untersuchungen
Devices and techniques for the rationalization of
statistical measurements of fabric elements in tectonic and
rock mechanical investigations**

Behr, H. J.
Rock Mech., Vol. 1, No. 2-3, p. 157-163 (incl. Engl., Fr.
sum.), illus., 1969

CODEN: RMFMAS

Subfile: B

Doc Type: SERIAL

Languages: German

Descriptors: *Petrofabrics; *Engineering geology; General;
Rock mechanics; Techniques; Instruments

Section Headings: 16 (STRUCTURAL GEOLOGY)

583733 71-02915

**A statistical model of seismicity and an estimate of the
basic seismic effects**

Kantorovich, L. V.; Molchan, G. M.; Keylis Borok, V. I.;
Vilkovich, E. V.
Phys. Solid Earth (Engl. Ed.) No. 5, p. 320-328, illus
(incl. sketch map), 1970

CODEN: JPSEBQ

Subfile: B

Doc Type: SERIAL

Languages: English

English translation of Russian article (see 712 70ml), No
5, p. 85, 1970

Descriptors: *Seismology; *Earthquakes; *Engineering geology
; Theoretical studies; General; Seismicity;
Section Headings: 18 (GEOPHYSICS, SOLID EARTH)

577528 70-29965

**The use of modal analysis in the mechanical characterization
of rock masses**

Mendes, Fernando de Mello, Barros, L. Aires de, Rodrigues,
F. Peres,
Port., Lab. Nac. Eng. Civ., Mem. No. 340, 9 p (incl. Fr.
Ger. sum.), illus., 1969

CODEN: LNEMAW

Subfile: B

Doc Type: SERIAL

Languages: English

(Reprinted from Int. Soc. Rock Mech., 1st Congr., Proc.,
Vol. 1, 1966); Rock mechanics, micropetrographic modal
analysis, applications, procedures, examples (altered granite,
gneissose granite)

Descriptors: *Engineering geology; *Statistical methods;
Rock mechanics; Methods; applications; modal analysis;
rock characterization

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

574535 70-26969

Performances of tunnel boring machines

Proctor, Richard J.
Assoc Eng Geol., Bull., Vol. 6, No. 2, p. 105-117, illus., 1969
CODEN ENGGA9
Subfile B
Doc Type: SERIAL
Languages: English
Summary of current capabilities, with examples
Descriptors: *Engineering geology; Tunnels; Boring;
present capability; statistics
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

558078 70 10446

Stability index for underground structures in granitic rock
Ege, John R

In Nevada Test Site (E. B. Eckel, ed.),
Geol. Soc. Amer. Mem. No. 110, p. 185-197, illus. (incl. geol. sketch map), 1968
Subfile B
Doc Type: SERIAL
Languages: English
Statistical analysis, core logging technique
Descriptors: *Engineering geology; Nevada; *Statistical methods; Rock mechanics; Granite; stability index;
Nevada Test Site; Regression analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

555925 70-08356

Zakonomenosti izmenchivosti inzhenerno-geologicheskikh svoystv alluvial'nykh i lessovykh porod v svyazi s vydeniym regional'nykh inzhenerno-geologicheskikh elementov
Variability patterns in the engineering properties of alluvial and loess rocks with reference to the distinction of regional engineering-geologic units
Sulakshina, G. A.; Rozhnovskaya, L. A.
Vyssh. Ucheb. Zaved., Izv., Geol. Razved., No. 11, p. 106-111, illus., 1968
Subfile B
Doc Type: SERIAL
Languages: Russian
Statistical analysis, example of Tom-Yaya interfluv., southwest Siberia
Descriptors: *Engineering geology; USSR; *Statistical methods; Rock mechanics; Tom-Yaya interfluv.; Variability patterns; Sedimentary rocks
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

555777 70-08208

Ispol'zovaniye mer teorii informatsii pri otsenke svyazey i postroyeni diagnosticheskikh klassifikatsiy v inzhenernoy geologii

The use of information theory to evaluate the relationships and structure of diagnostic classifications in engineering geology
Komarov, I. S.; Khayme, N. M.
Vyssh. Ucheb. Zaved., Izv., Geol. Razved., No. 9, p. 86-94, illus., 1968
Subfile B
Doc Type: SERIAL
Languages: Russian
Statistical analysis
Descriptors: *Engineering geology; *Statistical methods; Methods; Information theory; Statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

554556 70-06987

Properties and position in lateritic ground; some statistical relationships
Ruddock, E. C.

In Engineering properties of lateritic soils,
Int. Conf. Soil Mech. Found. Eng., 7th, Spec. Sess., Proc. Vol. 1, p. 11-21, illus., 1969
Subfile B
Doc Type: SERIAL
Languages: English
Variation patterns for sedimentary soils, engineering property variables, multiple regression analyses, compatibility with land classification systems
Descriptors: *Engineering geology; *Soils; *Laterites; *Statistical methods; Engineering properties; Properties; Laterite; statistical analysis; Methods; statistical; Regression analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

STABILITY ANALYSES; *SOILS; *STABILITY ANALYSES

552148 70-04577

A statistical theory of brittle fracture for rock materials;
part II. Brittle failure under homogeneous triaxial states of stress

Blach, B. T.
Int. J. Rock Mech. Mining Sci. Vol. 6, No. 3, p. 285-300,
Illus., 1969
Subfile B
Doc Type SERIAL
Languages English
Descriptors *Engineering geology; *Deformation;
*Statistical methods; *Rock mechanics; Theoretical studies
; Brittle failure; triaxial loading; theory; brittle
fracture
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

552144 70-04573

A statistical theory of brittle fracture for rock materials;
part I. Brittle failure under homogeneous axisymmetric states
of stress

Brady, B. T.
Int. J. Rock Mech. Mining Sci. Vol. 6, No. 1, p. 21-42,
Illus., 1969
Subfile B
Doc Type SERIAL
Languages English
Descriptors *Engineering geology; *Deformation;
*Statistical methods; *Rock mechanics; Theoretical studies
; Brittle failure; axisymmetric stress; theory; brittle
fracture
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

547387 70-07138-N

SEISMIC GEOLOGY OF THE EASTERN UNITED STATES

Fox, Fred L.
ASSOC. ENG. GEOLOGISTS BULL., V. 7, NOS. 1-2, p. 21-43 1970
Subfile N
Descriptors *EARTHQUAKE-RESISTANT DESIGN; *EARTHQUAKE
RESISTANT DESIGN; *EARTHQUAKES; *EASTERN; *ENGINEERING GEOLOGY
; *PROBABILITY; *UNITED STATES

547112 70-06738-N

SAFETY FACTORS IN SOIL MECHANICS (WITH FRENCH ABS.)

Meyerhof, G. G.
CANADIAN GEOTECH. JOUR., V. 7, NO. 4, p. 349-355 1970
Subfile N
Descriptors *ENGINEERING GEOLOGY; *ENGINEERING PROPERTIES;
*FOUNDATIONS; *PROBABILITY CONCEPTS; *SAFETY FACTORS; *SOIL

545930 70-05308-N

SOME STATISTICAL FEATURES OF THE RELATIONSHIP BETWEEN ROCKY
MOUNTAIN ARSENAL WASTE DISPOSAL AND FREQUENCY OF EARTHQUAKES,
IN ENGINEERING SEISMOLOGY - THE WORKS OF MAN

Hardwell, George E.
GEOL. SOC. AMERICA ENG. GEOLOGY CASE HISTORIES, NO. 8, p.
33-37, 1970
Subfile N
Descriptors *COLORADO; *DENVER AREA; *EARTHQUAKE FREQUENCY
VS. FLUID INJEC; *EARTHQUAKES; *ENGINEERING GEOLOGY; *FLUID
INJECTION; *REGRESSION-CORRELATION ANALYSIS; *RELATION; *ROCKY
MOUNTAIN ARSENAL; *ROCKY MTN. ARSENAL; *STATISTICAL ANALYSIS;
*STATISTICAL METHODS; *WASTE DISPOSAL

544646 70-03940-N

SAFETY FACTORS AND THE PROBABILITY DISTRIBUTION OF SOIL
STRENGTH (WITH FRENCH ABS.)

Lumet, Peter.
CANADIAN GEOTECH. JOUR., V. 7, NO. 3, p. 225-242 1970
Subfile N
Descriptors *ENGINEERING GEOLOGY; *ENGINEERING PROPERTIES;
*PROBABILITY DISTRIBUTION; *SLOPE STABILITY; *SOIL STRENGTH;
*SOILS; *STRENGTH

543202 70-02220-N

STATISTICAL PROPERTIES OF BED FORMS IN ALLUVIAL CHANNELS IN
RELATION TO FLOW RESISTANCE (ABS.)

Annambhotla, Venkata Subramanya S.
DISSERT. ABS. INTERNAT., SEC. B, SCI. AND ENG., V. 30, NO.
9, p. 4147B 1970
Subfile N
Descriptors *BED FORMS; *CHANNELS; *ENGINEERING GEOLOGY;
*LABORATORY STUDY; *MISSOURI RIVER; *NEBRASKA; *RIVERS;
*STATISTICAL PROPERTIES

533920 70-09432-G

A STATISTICAL STUDY OF RELATIONSHIPS BETWEEN ROCK PROPERTIES, CHAP. 8 IN STATUS OF PRACTICAL ROCK MECHANICS-SYMPOSIUM ON ROCK MECHANICS, 9TH, GUILLEN, COLO., 1967, PROC.

MUTMANSKY, JAN M.; SINGH, MADAN M. NEW YORK, AM. INST. MINING, METALL., AND PETROLEUM ENGINEERS, P. 161-177 1968

Subfile: G
Descriptors: *CORRELATION; *DEFORMATION; *EXPERIMENTAL STUDIES; *FACTOR ANALYSIS; *ROCK MECHANICS; *ROCK PROPERTIES; *STATISTICAL METHODS

517689 69-20985

Beitrage zur statistischen Mechanik der Locker- und Festgesteine
Statistical mechanics of unconsolidated and consolidated rocks

Neubert, Hans.

In Beitrage zur Ingenieurgeologie; ein Symposium. Fortsch. Geol. Rheinland Westfalen Vol. 15 p. 181-244 (Incl. Engl., Fr. sum.), illus., 1968

Subfile: B
Doc Type: SERIAL
Languages: German
Soil and rock mechanics, vectors, rheologic principles, loading tests, geometry of packing, state of stress, fissure effects
Descriptors: *Engineering geology; *Statistical methods; Rock mechanics
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

507225 69-10519

O vozmozhnosti ispol'zovaniya teorii veroyatnostey dlya resheniya nekotorykh zadach inzhenernoy geologii
Use of probability theory for the solution of some problems in engineering geology

Kolomeriskiy, Ye. N. Mosk. Univ., Vestn., Ser. 4, Geol. Vol. 23, No. 2, p. 85-90, illus., 1968

Subfile: B
Doc Type: SERIAL
Languages: Russian
Physical and mechanical properties of rocks, models
Descriptors: *Engineering geology; *Rock mechanics
Methods: probability theory
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

505716 69-09024

Priblizhenno-statisticheskiy metod opredeleniya optimal'nogo kolichestva inzhenerno-geologicheskikh prob porod
Method of statistical approximation for determining the optimum size of engineering-geologic rock samples

Ivanova, I. N. Vyssh. Ucheb. Zaved., Izv., Geol. Razved. No. 4, p. 72-78, illus., 1967

Subfile: B
Doc Type: SERIAL
Languages: Russian
Descriptors: *Engineering geology; *Statistical methods; Methods: Optimum rock sample size
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

503710 69-07032

Primeneniye posledovatel'nogo analiza pri inzhenerno-geologicheskoy oprobovanii
Application of sequential analysis in engineering-geologic sampling

Bondarik, G. K.; Goral'chuk, M. I. Geol. Geofiz. (Akad. Nauk SSSR, Sib. Otd.) No. 6, p. 74-80 (With Engl. sum.), illus., 1967

Subfile: B
Doc Type: SERIAL
Languages: Russian
Mathematical method
Descriptors: *Engineering geology; *Statistical methods; Methods: Sequential analysis of samples
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

501353 69-04686

Effective and true strength in normally-consolidated clays: some statistical considerations

Alpan, I. Int. Soc. Soil Mech. Found. Eng., Asian Reg. Conf., 3rd, Haifa, 1967, Proc. Vol. 1, p. 263-265, illus., 1967

Subfile: B
Languages: English
Effective-true failure conditions, cohesion factor, pore-water pressure
Descriptors: *Engineering geology; *Clays; *Failure; Statistical analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

490425 68-111163-N

A statistical study of relationships between rock properties, Chap. 8
Mirman'sky, Jan M.; Singh, Madan M

In Status of practical rock mechanics -- Symposium on Rock Mechanics, 9th, Golden, Colo., 1987, Proc.
New York, Am. Inst. Mining, Metall., and Petroleum Engineers
p. 161-177, illus., tables, 1968
Subfile: N

Descriptors: *Deformation; *Statistical methods;
*Engineering geology; *Experimental studies; Rock mechanics;
*factor analysis; correlation of properties; rock
properties; interrelations

485885 68-08884-N

An integrated system for exploiting quantitative terrain data for engineering purposes
Grabau, Warren E.

In Land evaluation (G. A. Stewart, editor)--CSIRO-UNESCO Symposium 1988, Papers
South Melbourne, Vic., Australia, Macmillan Co. of Australia
p. 211-220, illus., 1968
Subfile: N

Descriptors: *Engineering geology; *Statistical methods;
Terrain analysis; Mathematical models of relations

485879 68-08881-N

Terrain evaluation as a function of user requirements
Reim, Bob D.; Grabau, Warren E.

In Land evaluation (G. A. Stewart, editor)--CSIRO-UNESCO Symposium 1988, Papers
South Melbourne, Vic., Australia, Macmillan Co. of Australia
p. 64-76, illus., table, 1968
Subfile: N

Descriptors: *Engineering geology; *Military geology;
*Statistical methods; Terrain analysis; Terrain evaluation;
*Function of user requirements; Military and engineering
geology

483416 68-07764-N

The magnetite distribution in the Smallwood mine
Zodrow, Edwin L.

Canadian Mining and Metall. Bull. v. 61, no. 673, p. 629-632, illus., 1968
Subfile: N

A knowledge of the structural geology of this deposit in the southern extension of the Labrador syncline is essential for a statistical analysis of the magnetite distribution. The orebody is a doubly plunging, inverted syncline with two periods of folding in evidence; geologic mapping has indicated a strong trending of the mineralization which violates the statistical requirement of random data. As a first step, an effort was made to obtain a first approximation of the sample density function. Two distinctly different functions for the magnetite are postulated, each being a function of the genetic mode (sedimentary and metamorphic) and subsequent geologic influence.

Descriptors: *Engineering geology; *Nevada; *Iron; *Labrador;
*Statistical methods; Land subsidence; Economic geology;
Las Vegas Valley; Smallwood mine; magnetite distribution;
statistical analysis; distribution; factor analysis

483368 68-07748-N

Hydrogeology of the jointed dolomites, Grand Rapids hydroelectric power station, Manitoba, Canada
Grice, R. H.

Geol. Soc. America Eng. Geology Case Histories no. 6, p. 33-48, illus., tables, 1968
Subfile: N

The reservoir area is underlain by Ordovician and Silurian dolomites with a scattered cover of tills and glaciolacustrine silts. There are many sink holes in the dolomite. The distribution of joints and joint fillings in the different lithological units were mapped and statistically analyzed, and a quantitative ground-water flow technique was devised using the natural vertical water velocity profiles in uncased NX-sized drill holes. A grout curtain was devised from the exploration and research data. Since completion, continuous observations have demonstrated the evolution of the induced ground-water regime, confirmed the effectiveness of the control measures (grout curtain and pressure relief holes), and provided data for the development and further testing of the analytical procedures for ground-water flow analysis.

Descriptors: *Atlantic Ocean; *Engineering geology;
*Manitoba; *Marine geology; *Geomorphology; Applications;
Hydrogeology; Bottom features; Bahama canyon system;
Hydrogeologic studies; Grand Rapids hydroelectric plant;
Hydroelectric plant; Grand Rapids; ground-water control;
ground-water flow analysis; morphology

481552 68-05812-N

Stability index for underground structures in granitic rock
Ege, John R.

In Nevada Test Site
Geol. Soc. America Mem. 110 p. 185-197. illus., table.
1968

Subfile: N
More than 2,400 feet of core drilled for an underground installation in the Climax stock, at the north end of Yucca Flat, was logged to relate degree of weathering, relative hardness, core loss and broken core to joint frequency. By statistical regression analysis correlation was significant until joints exceeded 8 per ft and lost and broken core became greater than 30 percent. Parameter values were assigned to 10 grades of joint frequency, which were related to laboratory-determined physical and mechanical properties of core samples previously determined by logging. Rock grades correlated significantly with dry bulk density, total porosity, and Young's shear, and bulk modulus, but not Poisson's ratio. Underground mapping confirmed that rock grades 8 to 10 presented no construction or stability problems. 5 to 7 tended to have moderate overbreak, 3 and 4 were unstable, and phi (faults) to 2 incompetent.
Descriptors: *Engineering geology; *Igneous rock; *Nevada; *Statistical methods; *Underground excavation; *Granitic rock; *Stability index; *Nevada Test Site; *Engineering properties; Yucca Flat; Materials; properties; Regression analysis

480406 68-06143-N

Geophysical activity in 1967 applied to engineering, construction, and ground water projects
Melickian, G. E.

Geophysics v. 33, no. 5, p. 911-914, tables. 1968
Subfile: N

Data compiled from questionnaires sent out by the SEG Geophysical Activity Committee show that the total level of world activity in engineering, construction, and ground-water geophysics remained about the same in 1967, while the average costs decreased. It is felt that less than 50 percent of the total activity is being reported.

Descriptors: *Engineering geology; *Geophysical surveys; Practice; Worldwide; Geophysical activity; 1967; World statistics; 1967 activity; engineering; construction; ground water; statistics

Seismol Soc. America Bull. v. 58, no. 5, p. 1639-1655, illus., tables. 1968
Subfile: N

The earthquake responses of a twenty-story nonlinear structural frame were calculated. The structure was modeled by a two-dimensional frame with girders and columns having bilinear binding moment-end rotation hysteretic characteristics. In addition to hysteretic damping, viscous damping mechanisms were assumed. Earthquakes used were the El Centro (N-S) of May 18, 1940 and several pseudo-earthquakes. Certain behavior characteristics of the structural responses were identified which appeared to be determined more by the properties of the structure than by the earthquake. For the series of pseudo-earthquakes used, a large range was found in the maximum values of the responses of the yielding structure. Statistics of the magnitudes of the displacements and ductility factors were compared with three common measurements of the strength of earthquake accelerograms; none of these measurements correlated well with the trend of maximum responses.

Descriptors: *Engineering geology; Earthquakes; Multi-story structures; maximum response

477560 68-04579-N

Graphical statistics and common-sense applications
Mavis, Frederic T.

Am. Soc. Civil Engineers Proc. v. 94, paper G108. Jour. Hydraulics Div., no. HY5, p. 1207-1216, illus., table. 1968
Subfile: N

Analogies in statistics and mechanics can give the engineer a commonsense meaning of arithmetic means, standard deviations, and lines of mutual regression by least squares. Even so, numbers often have less vivid impact than graphs in the interpretation and projection of data which vary. Examples show how data can be analyzed graphically using medians and quartile deviations as measures of averages and variations. Such graphical methods lead to inferences equally valid and usually more meaningful than corresponding numbers arrived at by the method of least squares. A scale of probable deviations is presented in terms of percentage frequency and quartile deviations which, for normal distributions, leads graphically to the same probability estimates as those derived numerically by least squares, less abstractly and in less time. A list of papers on probability and statistics from 1901 through 1950 is appended.

Descriptors: *Engineering geology; *Statistical methods; Techniques; Data analysis; graphical statistics; General; graphic analysis

478536 68-05134-N

Maximum response ranges of nonlinear multi-story structures subjected to earthquakes
Giberson, Melbourne F.

472510 68-01854-N

**Moisture characteristics of Pennsylvania soils--[pt.] 1.
Moisture retention as related to texture**

Petersen, G. W.; Cunningham, R. L.; Matelski, R. P. 271-275, Soil Sci. Soc. America Proc. v. 32, no. 2, p. 271-275, illus., tables, 1968

Subfile: N

Average moisture contents at 1/3 and 15 atm levels and available moisture for various soil textural classes in Pennsylvania were determined from 1,267 surface and subsoil samples. Multiple regression analyses showed core bulk density most strongly associated with 1/3 atm moisture. 1 mm sieved clay content with 15 atm moisture; and organic carbon also with 15 but not with 1/3 atm moisture. Available moisture correlated negatively with sand and clay, positively with silt content. It was also highly correlated with 1/3 atm moisture whereas 15 atm moisture showed either negative or no correlation. Scatter diagrams show predictability from clay percentages. Equations for estimating available moisture from predetermined soil properties are given for each USDA textural class, except sand and sandy clay, and for each textural class of the new family grouping.

Descriptors: Pennsylvania; Soils; Permeability; Statistical methods; Engineering geology; Textural classes; Moisture retention; Moisture retention; Relation to texture; Regression analysis

472477 68-01837-N

**Large-scale testing of rockfill materials--Closure
to discussion of paper 5128, 1967**

Marsal, Raul J. Am. Soc. Civil Engineers Proc. v. 94, paper 1016, Jour. Soil Mechanics and Found. Div., no. SM 4, p. 1042-1047, illus., table, 1968

Subfile: N

Comments of Brauns and Leussink [ibid., v. 93, no. SM 6, 1967] on danger of failure in individual grains are pertinent. After the paper [ibid., v. 93, no. SM 2, 1967] was presented, tests and theoretical analyses showed that the working hypothesis is not correct, but does take into account the main factors affecting grain breakage. Marsal believes that random phenomena are best treated by statistical methods. Observations by Hillis and Skermer [ibid., v. 94, no. SM 1, 1968] on the influence of the sand-filled membrane on test results are well justified. To clarify this effect duplicated tests were run, one with the cover described in the paper, the other with rubber membranes. Results indicate that Hillis and Skermer are correct. Due to errors in the signs of strains, the volumetric changes from circumferential extension meters in the paper are wrong; corrected values are plotted. Descriptors: Engineering geology; Mexico; Materials; Properties; Rockfill; Laboratory tests

471118 68-01137-N

Probabilistic models for seismic force design

Benjamin, Jack R. Am. Soc. Civil Engineers Proc. v. 94, paper 5950, Jour. Structural Div., no. ST5, p. 1175-1196, illus., tables, 1968

Subfile: N

The procedure consists of first forecasting the probabilities of occurrence and number of quakes of a given Modified Mercalli intensity at a site from the historical record. The Poisson probability law is the most used model in earthquake forecasting, but the Bayesian statistical theory is more useful where mean rate of occurrence for events of main concern is not known. Forecasts are made for a 10-yr period for the San Francisco area, Calif. Three alternate designs for a structure are compared on the basis of expected losses, and the technique of estimating these losses for earthquakes of each intensity level is illustrated. Time-to-occurrence problems are discussed. More complex models, including the problems of occurrence, are introduced.

Descriptors: Earthquakes; Engineering geology; Prediction; Probabilistic models for seismic force design; Occurrence; Forecasting; Probabilistic models

470485 68-00807

Some problems in selecting a ground-surface length for slope-angle measurement

Pitt, A. F.
Rev. Geomorphol. Dyn. Vol. 17, No. 2, p. 66-71 (incl. Fr. sum.), illus., 1967
Subfile: E
Doc Type: SERIAL
Languages: English

The purpose of the discussion is to review an approach to slope-angle measurement which has developed largely from exploratory investigations by R.A.G. Savigear. In using this approach the slope surveyor has to delimit lengths of ground surface at points where he considers that a break in slope occurs. The ground-surface lengths are therefore of unequal extent, imposing restrictions on the application of statistical analysis to the measurements. Further limitations, introduced by the subjective assessment of where breaks in slope occur, are also illustrated. In view of these difficulties it is suggested that procedures for measuring slope-angles along a short unit-length of ground surface might prove to be a useful refinement of the techniques used by R.A.G. Savigear and others.

Descriptors: *Engineering geology; *Geodesy; *Methods;
Slope-angle measurement
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

469769 68-00443

**Formänderungen von Boden unter Belastung
Form changes of soil and sediment under load**

Neuber, H.
Deut. Geol. Ges., Z. Vol. 114 (1962), No. 2, p. 318-326, illus., 1963
Subfile: E
Doc Type: SERIAL
Languages: German

The mechanical characteristics of unconsolidated sediments, particularly those properties permitting extensive deformation and shearing, are of importance in construction. The behavior of a specific unconsolidated rock is controlled by: grain size, grain shape, mineral content, pore volume, water content, cementing media, and structure. Even if these parameters are known, the mechanical conditions can still not be predicted. Triaxial tests should therefore be made and the data statistically treated.

Descriptors: *Engineering geology; *Sediments; *Engineering properties; *Mechanics; deformation
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

469643 68-00376-N

The relationship of geophysical measurements to engineering

and construction parameters in the Straight Creek Tunnel pilot bore, Colorado

Scott, J. H.; Lee, F. T.; Carroll, R. D.; Robinson, C. S.
Internat. Jour. Rock Mechanics and Mining Sci. v. 5, no. 1, p. 1-30, illus., table, 1968
Subfile: N

Seismic-refraction and electrical-resistivity measurements along the walls of the Straight Creek Tunnel pilot bore indicate both a low-velocity and high-resistivity layer in the disturbed rock around the excavation. The electrical resistivity and seismic velocity of rock at depth, thickness of rock in the low-velocity layer, and relative amplitude of seismic energy were correlated against parameters of importance in tunnel construction (height of tension arch, stable vertical load, rock quality, etc.). Results were found to be statistically meaningful, and suggest the possibility of predicting parameters of interest from geophysical measurements in feeler holes drilled ahead of the working face.

Descriptors: *Colorado; *Engineering geology; *Electrical surveys; *Seismic surveys; Tunnels; Geophysical surveys; Straight Creek; Pilot bore; Construction parameters; Straight Creek Tunnel pilot bore; seismic; electrical; Straight Creek Tunnel; Straight Creek pilot bore

468566 69-12694-N

SIMULTANEOUS DETERMINATION OF BASIC GEOMETRICAL CHARACTERISTICS OF POROUS MEDIA

PEREZ-ROSALES, CANDELARIO.
SOC. PETROLEUM ENGINEERS JOUR., V. 9, NO. 4, p. 413-416, 1969; SOC. PETROLEUM ENGINEERS TRANS. 1969, V. 246 1970
Subfile: N

Descriptors: *ENGINEERING GEOLOGY; *GEOMETRIC CHARACTERISTICS; *MATERIALS; *PROPERTIES; *POROUS MEDIA; *SIMULTANEOUS DETERMINATION; *STATISTICAL METHODS; *VARIANCE ANALYSIS

466603 69-10541-N

STRAIN DISTRIBUTION AROUND UNDERGROUND OPENINGS - TECH. REPT. 2. STATISTICAL METHODS TO COMPARE AND CORRELATE ROCK PROPERTIES AND PRELIMINARY RESULTS (ADVANCED RESEARCH PROJECTS AGENCY CONTRACT DACA 73-68-C-0002(P002))

JUDD, WILLIAM R.
WASHINGTON, D. C., OFFICE OF CHIEF OF ENGINEERS, DEPT. ARMY,
109 P. 1969

Subfile: N
Descriptors: *AUTOMATIC DATA PROCESSING; *COMPUTER ANALYSIS;
*COMPUTER; *DATA COMPILATION; *ENGINEERING GEOLOGY; *ROCK
MECHANICS; *UNDERGROUND OPENINGS

463787 69-06641-N

INVESTIGATIONS INTO THE PROBABILITY OF SURFACE FAULTING (ABS.), IN ENGINEERING GEOLOGY AND SOILS ENGINEERING SYMPOSIUM, 7TH ANN., MOSCOW, IDAHO, 1969, PROC.

SMITH, JAY L.
BOISE, IDAHO, IDAHO DEPT. HIGHWAYS, P. 222 1969

Subfile: N
Descriptors: *CALIFORNIA; *ENGINEERING GEOLOGY; *FOUNDATIONS
; *PROBABILITY; *SITE SELECTION; *SOUTHERN; *STRUCTURAL
GEOLOGY; *SURFACE FAULTING PROBABILITY; *SURFACE FAULTING

462239 69-04704-N

A MATHEMATICAL MODEL FOR PIT SLOPE STABILITY, IN OPERATIONS RESEARCH AND COMPUTER APPLICATIONS IN THE MINERAL INDUSTRIES

HAMEL, D. J.
COLORADO SCHOOL MINES QUART., V. 64, NO. 3, P. 53-69 1969

Subfile: N
Descriptors: *ENGINEERING GEOLOGY; *MATHEMATICAL ANALYSIS;
*MODEL STUDY; *SLOPE STABILITY; *STATISTICAL METHODS;
*VARIANCE ANALYSIS

461030 69-03347-N

A STATISTICAL THEORY OF BRITTLE FRACTURE FOR ROCK MATERIALS-PT. 2. BRITTLE FAILURE UNDER HOMOGENEOUS TRIAXIAL STATES OF STRESS

BRADY, B. T.
INTERNAT. JOUR. ROCK MECHANICS AND MINING SCI., V. 6, NO. 3,
P. 285-300 1969

Subfile: N
Descriptors: *BRITTLE ROCK FRACTURE; *BRITTLE ROCK;
*DEFORMATION; *ENGINEERING GEOLOGY; *EXPERIMENTAL STUDIES;
*FACTOR ANALYSIS; *FAILURE; *FRACTURE STRENGTH; *HOMOGENEOUS
TRIAXIAL STRESS; *MATERIALS; *PROPERTIES; *ROCK MECHANICS;
*STATISTICAL METHODS; *TRIAXIAL LOADING

459683 69-00968-N

A STATISTICAL THEORY OF BRITTLE FRACTURE FOR ROCK MATERIALS-PT. 1. BRITTLE FAILURE UNDER HOMOGENEOUS AXISYMMETRIC STATES OF STRESS

BRADY, B. T.
INTERNAT. JOUR. ROCK MECHANICS AND MINING SCI., V. 6, NO. 1,
P. 21-42 1969

Subfile: N
Descriptors: *BRITTLE FAILURE; *BRITTLE; *DEFORMATION;
*ENGINEERING GEOLOGY; *EXPERIMENTAL STUDIES; *EXPERIMENTAL
STUDY; *FRACTURE; *ROCK MECHANICS

459113 67-11525

Quick-clay microstructure (Recent quick-clay studies, 3)

Pusch, Roland

Eng. Geol. Vol. 1, No. 6, p. 433-443, illus., 1966

Subfile: E

Doc Type: SERIAL

Language: English

Comparison of samples of late Pleistocene marine clays of the Gota river valley, Sweden, whose salt content was leached subsequent to deposition (quick clays) and unleached clays from the same horizon showed no significant microstructural differences. Statistical analysis of size and shape variations of the micropores revealed in electron micrographs are discussed in relation to permeability and strength properties of the quick clay, with particular reference to the development of deformation properties.

Descriptors: *Sweden; *Engineering geology; *Sediments;
Clays; Clay; Gota valley; Microstructure; Structures

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

456667 67-09173-N

The variability of natural soils

Lumb, Peter

Canadian Geotech. Jour. V. 3, no. 2, p. 74-97, illus.,

tables, 1966

Subfile: N

with French abs.,

Descriptors: *Engineering geology; *Soils; *Statistical
methods; *Engineering properties; *Properties; variability;
statistical analysis; Variance analysis

456381 67-08994-N

Analytical techniques for determining ground water flow fields--Hydraulic Lab. Tech. Rept. 8-28

Shahbazi, Mohsen; Todd, David K.
California Water Resources Center Contr. 117 139 p.
illus., tables. 1967
Subfile: N

Descriptors: *Automatic data processing; *Hydrogeology;
*Statistical methods; *Engineering geology; Aquifer
properties; Ground-water movement; Mathematical models;
Ground-water flow fields; Factor analysis; Analytical
techniques; mathematical model

456375 67-08991-N

Theoretical analysis of groundwater basin operations--Hydraulic Lab. Tech. Rept. 8-25

McWilliam, William D.
California Univ. Water Resources Center Contr. 114 167 p.
illus., tables. 1966
Subfile: N

Descriptors: *Automatic data processing; *Hydrogeology;
*California; *Statistical methods; *Engineering geology;
Ground-water movement; Mathematical models; System analogs;
Ground-water basin operations; Conductivity variations;
Ground-water basins; theoretical analysis; models; basin
variation models; Variance analysis

446381 67-03802

Engineering geology of the Dez project, southw: Iran

Dodds, R. Kenneth.
Eng. Geol. (Ass Eng. Geol.) Vol. 3. No. 1-2. p. 21-32.
1966
Subfile: E

Doc Type: SERIAL
Languages: English
The project is built entirely in a pile one cobble
conglomerate in which continuous structural features are
confined to widely spaced joints. The physical properties of
the conglomerate were studied. These data were combined with
detailed geologic maps for statistical evaluation of in situ
bearing capacity.

Descriptors: *Iran; *Engineering geology; Rock mechanics
; Dez project
; Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

446249 67-01735

Some numerical results concerning the shear strength of London clay

Hooper, J. A.; Butler, F. G.
Geotechnique Vol. 16, No. 4, p. 282-304, illus.. 1966
Subfile: E

Doc Type: SERIAL
Languages: English

Numerical data pertaining to the shear strength of London clay is given. Results are given of triaxial and constant rate of penetration tests carried out at a number of sites. At one particular site, a large number of undrained triaxial tests were performed, enabling results to be analysed on a statistical basis. It is shown that the variation in laboratory shear strength at specific levels in the clay stratum is closely related to the well-known Gaussian distribution. In addition, samples taken hydraulically give strengths which are more consistent and about 20 percent higher than corresponding driven samples obtained from moderate depths. Calculations show that the standard deviation and coefficient of variation for driven samples are approximately double those relevant to hydraulic samples. For a given sampling method, the coefficient of variation appears to be reasonably constant over a considerable depth range. Results of constant rate of penetration tests indicate that this method gives strengths which are more consistent and perhaps more representative of in-situ conditions than those produced from normal sampling techniques.

Descriptors: *Engineering geology; Clays; Shear strength
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

444804 67-02965-N

The use of statistical analysis in quarry evaluation

West, Terry R.; Smith, Ned M.; Johnson, Robert S.

In A symposium on industrial mineral exploration and development--Forum on Geology of Industrial Minerals, 3d, Univ. Kansas, 1967, Proc. Kansas Geol. Survey Spec. Distrib. Pub. 34 p. 10-25, illus., tables. 1967
Subfile: N

Descriptors: *Construction materials; *Indiana; *Limestone; *Statistical methods; *Economic geology; *Engineering geology; *Properties; *Mississippian limestones; evaluation; *Mississippian; Variance analysis; Limestone properties

443606 67-02349

A theoretical investigation on the formation factor-permeability-porosity relationship using a network model

Schopper, Jurgen R.
Geophys. Prospect. (The Hague) Vol. 14, No. 3, p. 301-341, illus., 1966

Subfile: E

Doc Type: SERIAL

Languages: English

The knowledge of hydraulic and electric properties of porous media and the relations between them is essential for the quantitative evaluation of electric well logs and the solution of other reservoir engineering problems. A general theory of the electric and hydraulic resistance behavior of porous media on the basis of a very general statistical network model is developed. A general solution of the relations between formation factor, permeability, and porosity is presented by means of a rigorous mathematical treatment of two limiting cases of such a network. The product of the formation factor and the permeability can be expressed in the expectation values and the variation coefficients of pore channel cross section and shape factor and by a network factor that depends on the mesh texture of the network. This network factor is in the range zero to one. The path length increase enters both the electric and the hydraulic tortuosity by its square.
Descriptors: *Electrical properties; *Hydrogeology; *Well-logging; *Engineering geology; *Petroleum; *Porous media; *Hydrodynamics; *Electrical; *Reservoirs; *Hydraulic properties relationship; *Significance in resistivity measurements; *Electrical properties relationship; Interpretation; *Formation factor-permeability-porosity relations; *Electrical well log evaluation
Section Headings: 23 (SURFICIAL GEOLOGY, GEOMORPHOLOGY)

440483 67-01098-1

A statistical forecasting of engineering properties and compression index of soils, Salt Lake City, Utah

Cardone, Anthony Thomas
1966

Subfile: T

Degree Level: Master's

Doc Type: THESIS

Descriptors: *Soils; *Utah; *Engineering geology; *Engineering properties; Salt Lake City
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

429926 67-10493-G

SOME IMPLICATIONS OF STATISTICAL TRANSPORT THEORY IN ROCK MECHANICS

SCHIEDER, ALFRIAN EUGEN.

PURE AND APPL. GEOPHYSICS, V. 65, P. 160-163 1966

Subfile: G

Descriptors: *DEFORMATION; *ROCK MECHANICS; *SUBSIDENCE; *THEORETICAL STUDIES

426027 66-12120-G

THE PROBABILISTIC NATURE OF FAILURE IN THE GEOLOGIC UNIVERSE, IN INTERNAT. CONF. STRATA CONTROL AND ROCK MECHANICS, 4TH, NEW YORK, 1964, PROC.

WANE, MALCOLM T.; HASSIALIS, MENELAS D.; ROSHKOV, STEFAN.
NEW YORK, COLUMBIA UNIV. PRESS, P. 324-329, 1964 (1965)

Subfile: G

Descriptors: *FAILURE; *PROBABILITY; *ROCK MECHANICS; *STATISTICAL CONCEPTS; *STRENGTH

419521 66-11335-N

A three dimensional optimum pit program and a basis for a mining engineering system

Hartman, R. J.; Varma, G. C.

In Internat. Symposium on Computers and Operations Research, 8th Ann., 1966

Pennsylvania State Univ. Mineral Industries Expt. Sta. Spec. Pub. 2-65, V. 3 p. 001-0035, illus., 1966

Subfile: N

Descriptors: *Statistical methods; *Mining geology; *Engineering geology; Evaluation; Open-pit mining; optimum ore evaluation; Open pit; 3-dimensional grid program

418182 66-07542-N

Seismic regionalization of eastern Canada
Hamilton, Angus C.

In Symposium on design for earthquake loadings, Montreal, 1966, Proc. Montreal, Quebec, McGill Univ. p. II-1-11 23, illus., table, 1966
Subfile: N

Seismic regionalization is defined as a method of establishing earthquake risk factors using seismicity analyses supplemented, in some cases, by tectonic information. Definitive catalogs of all earthquakes known to have occurred in historical time in eastern Canada have been published, providing the basis for statistical evaluation of earthquake risk. Good progress has been made on compilation of a regionalization map prepared objectively by sound statistical methods. Information on recent tectonic activity in eastern Canada is summarized. Although preliminary analysis of geomorphological, tide gauge, leveling and gravity data indicates that postglacial crustal tilting has been, is, and should be occurring on a regional scale, much more data are needed before there is any possibility of using tectonic information to supplement seismicity analysis for the regionalization of eastern Canada.

Descriptors: Canada; Earthquakes; Engineering geology; seismic regionalization; eastern; Seismicity; regionalization

416980 66-06020-N

The effect of stress concentrations on the stability of tunnels
Coates, D. F.

In Internat. Soc. Rock Mechanics Congress, 1st, Lisbon, 1966, Proc., V. 2
Lisbon, Portugal, Laboratorio Nacional Engenharia Civil p. 299-305, illus., tables, 1966
Subfile: N

With French and German abs...
Stress concentrations around an underground opening may theoretically exceed the strength of the rock mass. Deviations of actual rock properties from those of homogeneity and perfect elasticity can, however, modify theoretical stress distributions considerably. In addition, known variation of strength of rocks with volume of rock makes prediction of failure due to stress concentration questionable. Several experiments have been conducted which show that failure due to compressive stress concentrations can be predicted under favorable circumstances quite accurately. However, considering failure as a stochastic phenomenon, predictions could be in terms of probability of failure rather than certainty. As a result, it can be seen that a main requirement to improve correspondence between experimental and predicted results is

to have better methods for determining mechanical properties of rock masses.
Descriptors: Engineering geology; Rock mechanics; Tunnels; failure; compressive stress; effect; Stability; stress concentration in rock

416833 66-05866-N

Coastal processes. [Chap.] 9
Johnson, J. W.; Eagleson, P. S.

In Estuary and coastline hydrodynamics
New York, McGraw-Hill Book Co. (Eng. Soc. Mons.) p. 404-492, illus., tables, 1966
Subfile: N

This textbook chapter reviews sources and characteristics of beach material, modes of transport and losses of material, quantitative analysis of transport processes, characteristics of beach deposits and of the equilibrium beach, and sediment problems at coastal structures. The general character and magnitude of oceanic and estuarine currents are considered in longshore and onshore-offshore sediment movement, and the principal features and uses of quantitative analyses are discussed, as well as methods of sampling and measurement of statistical distributions of beach deposits. Classification of beach profiles in the offshore zone is tabulated, and the sorting of sediments is described. Typical shoreline examples illustrate changing configuration and sediment problems with man-made structures.

Descriptors: Sedimentation; Geomorphology; estuaries; Engineering geology; Ocean currents; Shore features; Shorelines; Coastal processes; engineering problems; Beaches; processes; materials

414743 66-03513-N

Earthquake ground motion and engineering procedures for important installations near active faults
Plume, John A

In World Conf. Earthquake Eng., 3d, New Zealand, 1965, Proc., V. 3
Wellington, New Zealand Inst. Engineers p. IV-53--IV-71, illus., tables, 1965, 1966
Subfile: N

Costly or sensitive buildings, structures, and facilities are being constructed in active earthquake areas throughout the world. Building codes and normal design practices are not always compatible with the inherent risks. This paper outlines procedures for site studies and site selection, evaluation of seismic probability and risk, a new approach to ground motion based upon soil and rock properties, response spectra, inelastic design criteria, and related matters, in the light of current (limited) knowledge. Hypothetical examples are based upon experience with nuclear power plants and major research facilities close to active faults. Analytical, empirical, philosophical, and practical considerations are recommended.

Descriptors: *Engineering geology; *Earthquake; *Effects; *Building sites; *active fault areas; *ground motion; *engineering procedures; *Engineering structures; *fault areas; *site selection

414739 66-03509-N

A simulation of earthquake amplification spectra for southern California sites
Lacer, Donald A.

In World Conf. Earthquake Eng., 3d, New Zealand, 1965, Proc., V. 1
Wellington, New Zealand Inst. Engineers p. III-151--III-167, illus., tables, 1965, 1966
Subfile: N

A mathematical model is developed for estimating the maximum ground motion to be expected at a given site in a given time period. More than 2,000 simulated earthquakes are generated using Monte Carlo and other statistical techniques. A digital computer program is used to calculate the maximum velocity spectra at several southern California sites due to the simulated earthquakes. It is concluded that the simulated earthquake approach is a reasonable analytic method that can be refined to yield results which will be of importance in earthquake resistant structural design.

Descriptors: *Statistical methods; *Earthquakes; *California; *Engineering geology; *Effects; *Monte Carlo technique; *ground motion; *maximum velocity spectra; *computer program; *Southern; *General; *Ground motion simulation; *Mathematical model; *California sites

414732 66-03501-N

Earthquake spectrum prediction for the Valley of Mexico
Herrera, Ismael; Rosenbluth, Emilio; Rascon, O. A.

In World Conf. Earthquake Eng., 3d, New Zealand, 1965, Proc., V. 1
Wellington, New Zealand Inst. Engineers p. I-61--I-74, illus., table, 1965, 1966
Subfile: N

Paper reports field and laboratory tests to determine the dynamic properties of Mexico City clay. The data are used in conjunction with a linear, one-dimensional theory of multiple wave reflection in stratified media and the results are treated in accordance with an approximate theory, which permits computing the probability distributions of spectral responses for various degrees of damping. Expected spectra are compared with those obtained from earthquake records. Missing information for deep strata is found by trial and error and velocities measured for the upper layers are adjusted on reasonable bases. The comparison is deemed good.

Descriptors: *Engineering geology; *Earthquakes; *Elastic properties; *Mexico; *Clay; *Spectrum prediction; *Valley of Mexico; *General; *response spectrum; *Mexico City; *spectral response; *distribution in earthquakes

414731 66-03500-N

Response spectra on stratified soil
Herrera, Ismael; Rosenbluth, Emilio

In World Conf. Earthquake Eng., 3d, New Zealand, 1985,
Proc., V. 1
Wellington, New Zealand Inst. Engineers p. 1-44--1-60,
illus., 1965, 1966

Subfile: N
Paper concerns the probability distribution of spectral
responses of viscously damped single-degree system resting on a
stratified viscoelastic soil. The soil is assumed to rest on a
viscoelastic homogeneous half space of rock. Motion arriving
at the rock-soil interface is idealized as a stationary
Gaussian process. The transfer function for the soil formation
is treated independently for each vibration frequency of
interest. In order to allow for dependence of viscoelastic
parameters on the wave frequency, this is accomplished through
use of a matrix formulation. Certain additional approximate
results are included.

Descriptors: *Engineering geology; *Earthquake; Effects
; Structures; response spectra; stratified soil; foundation;
Engineering structures

414600 66-03362-N

Analysis of textural and physical factors contributing to
the abrasion resistance of some Indiana carbonate aggregates

West, Terry R.; Johnson, Robert B.
Indiana Acad. Sci. Proc. 1965 v. 75, p. 153-62, illus.,
1966

Subfile: N
Textural data on Indiana carbonate aggregates were obtained
by hand specimen examination, and from polished- and
thin-section analysis. Engineering tests were run principally
on the Los Angeles abrasion machine, and a multiple regression
and correlation analysis was made on the resulting data. A
cluster diagram of simple correlation coefficients is given
for each of the four different statistical analyses made.
Significant parameters are insoluble residues, solid content,
degradation value, average grain diameter, and sulfur sulfate
loss.

Descriptors: *Construction materials; *Indiana; *Engineering
geology; Materials; properties; Aggregates; carbonate;
abrasion resistance; analysis; aggregate

410576 65-14004-N

Stochastic processes in the grain skeleton of soils
Marsal, R. J.

In Internat. Conf. Soil Mechanics and Found. Eng., 6th,
Montreal, Quebec, 1965, Proc., V. 1

Toronto, Ontario, Univ. Toronto Press p. 303-307, illus.,
1965

Subfile: N
With French abs.,
Descriptors: *Soils; *Statistical methods; Structure;
Stochastic analysis; Stochastic analysis of grain skeleton;
Soil structure

410290 65-13687-N

Some implication of statistical transport theory in rock
mechanics [abs.]

Scheidegger, Adrian E.
Mining Eng. v. 17, no. 12, p. 39, 1965
Subfile: N
Descriptors: *Engineering geology; Rock mechanics;
Statistical transport theory

409214 65-12410-N

The probabilistic nature of failure in the geologic universe
Vane, Malcolm T.; Hasselblad, Menelaos D.; Boshkov, Stefan

In Internat. Conf. Strata Control and Rock Mechanics, 4th,
New York, 1964, Proc.
New York, Columbia Univ. Press p. 324-329, illus., 1964,
1965

Subfile: N
Descriptors: *Statistical methods; Engineering geology;
Probability applied to rock strength

407995 65-05846-N

Rock mechanics principles

Coates, D. F. Mines and Tech. Surveys Mines Br. Mon. 874
[318] p., illus., 1965
Subfile: N

In this guide for the young engineer or scientist, emphasis is on the application of engineering mechanics to problems arising from the needs either to prevent or to cause rock failure, especially in mining. Various important theories in mechanics and rock properties are reviewed for background information. The main groups of rock problems examined in separate chapters are: elastic prototypes; shafts, drifts and tunnels; pillars; slopes, caving and subsidence; rock slopes; foundations; and rock dynamics. The quantitative statistical expression of the dispersion of material properties enables decisions to be made on the degree of risk to be taken, but for prediction with certainty comparative analyses still can be valuable, and experience and good judgment are invaluable.

Descriptors: *Education; *Engineering geology; *Mining geology; *Rock mechanics; *Textbooks; *Technology; *Methods; *Textbook; *Mining problems; *Principles; *Rock mechanics principles; *Mining applications

407932 65-05672-N

Volume change

Holitz, W. G.

In Methods of soil analysis--Pt. 1, Physical and mineralogical properties, including statistics of measurement and sampling

Madison, Wis., Am. Soc. Agronomy (Agronomy, no. 9) p. 448-465, illus., 1965
Subfile: N

For consolidation tests on soils the apparatus needed includes a consolidometer, a loading device, and a device for cutting undisturbed specimens and for preparation of remolded specimens. Procedure is described in detail from specimen preparation to measuring rebound. Calculation instructions include data sheets and examples of data plotting and instructions on report writing are given. Expansion and shrinkage tests use the same apparatus as consolidation; procedures are described.

Descriptors: *Engineering geology; *Soils; *Engineering properties; *Consolidation; testing methods

407931 65-05671-N

Shear strength

Sillberg, John R.

In Methods of soil analysis--Pt. 1, Physical and

Mineralogical properties, including statistics of measurement and sampling

Madison, Wis., Am. Soc. Agronomy (Agronomy, no. 9) p. 431-447, illus., 1965
Subfile: N

In testing for shear strength, external forces are applied to the soil specimen in such a way that two adjoining parts slide relative to each other. This measurement can be made either in place or in the laboratory. In-place measurements include vane-shear, plate-load, and penetration tests. Laboratory tests include miniature vane-shear, direct shear, and triaxial and unconfined compression. The last three are described in detail.

Descriptors: *Engineering geology; *Soils; *Engineering properties; *Shear strength; testing methods

404936 65-00737-N

Phenomena affecting improvement of the lower Columbia estuary and entrance

Lockett, John B.

In Federal Inter-Agency Sedimentation Conf., Jackson, Miss., 1963, Proc., Symposium 3--Sedimentation in estuaries, harbors, and coastal areas

U.S. Dept. Agriculture Misc. Pub. 970 p. 626-669, illus., tables, 1965
Subfile: N

In this paper past concepts are examined of phenomena controlling the regimen of this area at the mouth of the Columbia River near Astoria, Oreg., as related to work undertaken to improve its navigability. New concepts emphasize the relation of salinity intrusion and littoral movement to degree of shoaling. Statistical wave studies, analyses of offshore changes, studies of attrition and accretion of adjacent shorelines, and comprehensive investigations of the distribution of Columbia River sediments are reviewed. Bathymetric charts of several years are presented; one is dated 1792. Considerations for the future under controlled upland discharge are outlined.

Descriptors: *Estuaries; *Sedimentation; *Oregon; *Rivers; *Engineering geology; *Estuarine; Columbia River mouth; Controlling phenomena; Harbor improvements; Columbia River estuary; Columbia estuary

402185 64-06593-N

Modulus of elasticity of a rock determined by four different methods

Cannaday, Francis X.
U.S. Bur. Mines Rept. Inv. 6533 59 p., illus., tables.
1964

Subfile: N
Young's modulus of elasticity was determined for specimens cut from a single original block of Bedford, Indiana, limestone. For given environmental and stress conditions, differences between moduli obtained by (1) deformation of a borehole in a prism subjected to uniaxial stress, (2) deflection of a thin beam of uniform cross-section uniformly loaded, (3) sonic-pulse velocity measurements, and (4) strain-measurements on a prism under uniaxial stress, are smaller than physical variations within the rock tested. The paper includes tables of specific gravity measurements and a statistical analysis of experimental results.

Descriptors: *Rock mechanics; *Elasticity; *Limestone; Young's modulus; determination methods; Bedford Limestone; experimental determination methods; Bedford

401221 64-05239-N

The prediction of strength in the sediments of St. Andrew Bay, Florida

Holmes, C. W.; Goodell, H. G.
Jour. Sed. Petrology v. 34, no. 1, p. 124-143, illus., 1964

Subfile: N
The cohesion, or strength, of marine sediments of cores from ten sites in St. Andrew Bay was studied as a function of other sediment characteristics by multiple linear regression and non-linear regression. Strength, measured by unconfined compression of vane shear tests, is found to decrease as sediment water increases, to increase with depth in core, and to increase with increase in ratio of kaolinite to illite. All these variables are linearly related to strength, but they are also associated with second-order effects which may both increase and decrease strength. Penetration depends on sediment water content, mean grain size, sorting, and void ratio.

Descriptors: *Florida; *Sediments; *Wells and drill holes; *Statistics; *Submarine geology; *Engineering geology; Saint Andrew Bay; marine sediment cores; strength; statistical analysis; marine cores; related variables; sediment cores

400877 64-04825-N

Engineering geology of Straight Creek tunnel site, Colorado

Robinson, C. S.; Lee, F. T.

In Symposium on soil exploration, Atlantic City, N. J., 1963
Am. Soc. Testing and Materials Spec. Tech. Pub. 351 p., 17-28, illus., 1964

Subfile: N
Straight Creek tunnel will be driven through Precambrian granite and metamorphic rocks; the latter are inclusions in the granite that range from less than a foot to an average maximum dimension of 200 feet. The rock of the area has been extensively faulted, sheared, jointed, and locally altered. Geologic information collected from surface and drill-hole exploration and correlated with geophysical and laboratory data is treated statistically and projected to tunnel level. Thus the engineering behavior of the rocks is predicted and expressed in terms of the rock load, support requirements, intervals to be tested by feeler holes, amount of grout required, ground water flow at the portal, and the maximum initial ground water flow for various intervals of the tunnel. Descriptors: *Colorado; *Wells and drill holes; Engineering geology; Structural geology; Straight Creek tunnel site; statistical model; pilot cores

388899 62-05555-N

Landslides along the Columbia River valley, northeastern Washington

Jones, Fred D.; Embury, Daniel R.; Peterson, Warren L.; Hazlewood, Robert M.
U.S. Geol. Survey Prof. Paper 367 98 p., illus., tables, geol. maps, 1961, 1962

Subfile: N
Descriptors: *Engineering geology; *Landslides; *Washington; *Seismic surveys; *Statistical methods; *Geophysical surveys; Maps; Columbia River valley; northeastern; landslides areas; Landslide analysis; seismic; Geologic

387623 62-04218-N

Correlation of rock properties by statistical methods

Judd, W. R.; Huber, Carolyn
in International symposium on mining research, Univ. Missouri, 1961, Proc., V. 2
New York, Pergamon Press p. 621-648, illus., 1962

Subfile: N
Descriptors: *Engineering geology; *statistical methods; *Mining geology; *Rock mechanics; Physical properties; correlation; Rock properties

DIALOG FILE89 GENREF : 61 R2/Sep (Copr. American Geological Institute) (Item 1356 of 1356) User: 5208 2sep82

380188 61-05619-N

Littoral materials of the south shore of Long Island. New York

Taney, Norman E.
U.S. Army Corps Engineers. Beach Erosion Board Tech. Memo.
129 [49] p. illus., tables. 1961
Subfile N
Descriptors : New York; *Sedimentary petrology; *Statistics
: Engineering geology; Petrology; Littoral materials
analysis : Long Island; south shore; protection problems;
littoral materials

1101281 82-24625

Probabilistic treatment of faulting in geologic media

Donath, F. A.; Cranwell, R. M.
 Univ. Ill., Urbana, IL, USA; Sandia Lab., USA

Mechanical behavior of crustal rocks: the Handin volume

Carter, N. L. (EDITOR); Friedman, M. (EDITOR); Logan, J. M. (EDITOR); Stearns, D. W. (EDITOR)
 Tex. A&M Univ., Cent. Tectonophys., College Station, TX, USA
 Geophysical Monograph 24, 231-241p., 1981
 CODEN: GPMGAD ISSN: 0065-8448 12 REFS.

Subfile: B

Country of Publ.: United States

Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.: 1 table

Descriptors: faults; waste disposal; geologic hazards; displacements; radioactive waste; active faults; prediction; rock mechanics; probability; stress; statistical analysis

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1096239 82-18539

Probabilistic approach to deformation and strength properties of shale mass

Kulatilake, P. H. S. W.
 Ohio State Univ., Columbus, OH, USA
 166p., 1981

Subfile: B

Degree Level: Doctoral

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Availability: Univ. Microfilms

Descriptors: rock mechanics; deformation; materials; properties; theoretical studies; shale; yield strength; statistical analysis; strength; probability; Pennsylvania; Connaught Group; Ohio; United States; Pennsylvanian; Paleozoic; clastic rocks; materials; properties; Young's modulus; elastic constants

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1080379 82-03990

Slope stability analysis and design based on probability techniques at Cassiar Mine

Piteau, D. R.; Martin, D. C.
 D. P. Piteau and Assoc., West Vancouver, BC, CAN
 CIM Bulletin (1974) 70: 779, 139-150p., 1977
 ISSN 0317-0926 5 REFS.

Subfile: B

Country of Publ.: Canada
 Doc Type: SERIAL Bibliographic Level: ANALYTIC

Languages: English

illus.: 2 tables, sect.

Latitude: N591000; Longitude: W1204000; W1300000
 Descriptors: rock mechanics; British Columbia; mining geology; materials; slope stability; open-pit mining; methods; argillite; properties; engineering geology; Cassiar Mine; Sylvester Group; Canada; northern British Columbia; design; failures; peridotite; ultramafic family; clastic rocks; volcanic rocks; fractures; joints; style; strength; materials; properties; berms; wedges

Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1029148 81-16262

Fracture densities in the Rattlesnake Mountain fold, Wyoming

Goodwin, E. R. K.
 Univ. of Oklahoma, Norman, OK, USA
 unknownp., 1979

Subfile: B

Degree Level: Master's

Country of Publ.: United States

Doc Type: THESIS Bibliographic Level: MONOGRAPHIC

Languages: English

Latitude: N420000; Longitude: W1060000; W1070000

Descriptors: Wyoming; structural analysis; rock mechanics; sedimentary rocks; structural geology; fractures; field studies; carbonate rocks; strain; Natrona County; Big Horn Formation; United States; dolostone; Rattlesnake Mountain; folds; probability; Basin and Range Province

Section Headings: 16 (STRUCTURAL GEOLOGY)

1018903 81-08130

Probability of kinematic instability in rock slopes; a numerical approach

Glynn, E. F.; Einstein, H. H.
Univ. Pa., Philadelphia, PA, USA; Mass. Inst. Technol., USA
20th U.S. symposium on rock mechanics, Austin, TX, United States, June 4-6, 1979
Samp. Rock Mech., Proc. 20, 317-325p., 1979
CODEN: PSRMA6 ISSN: 0586-3031 6 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.

Descriptors: *rock mechanics; *slope stability; theoretical studies; mathematical methods; numerical analysis; errors; joints; fractures; kinetics; kinematics; slopes
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

1018897 81-08277

Statistics of structural responses to seismic waves filtered through rock and soil formations

Spanos, P. T. D.
Univ. Tex., Austin, Austin, TX, USA
20th U.S. symposium on rock mechanics, Austin, TX, United States, June 4-6, 1979
Samp. Rock Mech., Proc. 20, 273-278p., 1979
CODEN: PSRMA6 ISSN: 0586-3031 11 REFS.
Subfile: B

Country of Publ.: United States
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus., sect.

Descriptors: *rock mechanics; *seismology; theoretical studies; elastic waves; mathematical models; statistical methods; earthquakes; probability; damping; frequency
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

994095 80-35645

Probability of pillar failure at Elliot Lake

Coates, D. F.

Advances in rock mechanics--Progres en mecanique des roches--Fortschritte in der Felsmechanik; Events and discussion
Wallace, G. B. (chairperson)
Third congress of the International Society of Rock

Mechanics; Advances in rock mechanics, Denver, Colo., United States, September 1-7, 1974
Int. Soc. Rock Mech., Congr., Proc. 3, Vol. 3, 133-143p., 1974

CODEN: 32ZUA4 ISSN: 0074-848X 8 REFS.

Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus.

Descriptors: *Ontario; *rock mechanics; engineering geology; experimental studies; foundations; Canada; Elliot Lake
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

908077 78-39397

A general probabilistic analysis for three-dimensional wedge failures

Major, G.; Ross-Brown, D.; Kim, H.
Dames and Moore, Denver, Colo., USA
19th U.S. symposium on rock mechanics, Stateline, Nev., United States, May 1-3, 1978
Samp. Rock Mech., Proc. 19, Vol. 2, 45-56p., 1978
CODEN: PSRMA6 15 REFS.

Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL: CONFERENCE PUBLICATION Bibliographic Level: ANALYTIC
Languages: English
illus.

Descriptors: *rock mechanics; *slope stability; failure; probability; Monte Carlo analysis; models; three-dimensional models; experimental studies; mines; wedges
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

009076 78-39401

Probabilistic analysis of the plane shear failure mode

Marek, J. M.; Savelly, J. P.
Pincock, Allen and Holt, Tucson, Ariz., USA
19th U. S. symposium on rock mechanics, State line, Nev.,
United States, May 1-3, 1978
Symp. Rock Mech., Proc. 19, Vol. 2, 40-44p., 1978
CODEN: PSRMA6 5 REFS.
Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.
Descriptors: *rock mechanics; *slope stability; failure;
shear strength; probability; Monte Carlo analysis;
mathematical methods
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

908003 78-39338

A probabilistic model for shearing resistance of jointed rock

Glynn, E.; Einstein, H. H.; Veniziano, D.
Mass. Inst. Technol., Cambridge, Mass., USA
19th U. S. symposium on rock mechanics, State line, Nev.,
United States, May 1-3, 1978
Symp. Rock Mech., Proc. 19, Vol. 1, 66-76p., 1978
CODEN: PSRMA6 9 REFS.
Subfile: B
Country of Publ.: Varies
Doc Type: SERIAL; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.; table
Descriptors: *rock mechanics; *slope stability; *fractures
materials; properties; failure; style; stress; joints;
models; probability; fracture zones; materials; properties
strength; shear strength; mathematical models
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

898431 78-31959

Probability analysis of rock slopes and its application to a pit slope design

Young, D. S.
Kennecott Copper Corp., Salt Lake City, Utah, USA
Energy resources and excavation technology; proceedings,
18th U. S. symposium on rock mechanics
Wang, F. D. (EDITOR); Clark, G. B. (EDITOR)
Energy resources and excavation technology; 18th U. S.
symposium on rock mechanics, Keystone, Colo., United States,

June 22-24, 1977
Publ.: Colo. Sch. Mines Press
SC5.1-SC5.6p., 1977
5 REFS.
Subfile: B
Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.; tables
Descriptors: *slope stability; failure; site exploration;
design; statistical analysis; probability; excavations;
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

898397 78-31776

Probability of specified ground vibrations from blasting

Lutton, R. J.
USAE Waterways Exp. Stn., Vicksburg, Miss., USA
Energy resources and excavation technology; proceedings,
18th U. S. symposium on rock mechanics

Wang, F. D. (EDITOR); Clark, G. B. (EDITOR)
Energy resources and excavation technology; 18th U. S.
symposium on rock mechanics, Keystone, Colo., United States,
June 22-24, 1977
Publ.: Colo. Sch. Mines Press
3C2.1-3C2.7p., 1977
7 REFS.

Subfile: B
Country of Publ.: United States
Doc Type: BOOK; CONFERENCE PUBLICATION Bibliographic
Level: ANALYTIC
Languages: English
illus.; tables, sect.
Descriptors: *explosions; effects; ground motion;
construction; elastic waves; velocity; vibration
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

89A1G5 78 31843

Slope stability analysis and design based on probability techniques at Cassiar Mine

Piteau, D. R.; Martin, D. C.
D. R. Piteau and Assoc. Ltd., West Vancouver, B.C., USA
Can. Inst. Min. Met., Trans. 80, 51-62p., 1977
CODEN: ICIMAT 5 REFS.
Subfile B
Country of Publ.: Canada
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English
illus.: tables, sects.
Latitude: N550000; N612000 Longitude: W1260000; W1320000
Descriptors: *mining geology; *slope stability; *British Columbia; *practice; *site exploration; *engineering geology; *open pit mining; *Cassiar Mine; *Sylvester Group; *ground water; *rock mechanics; *design; *Canada
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

779570 76-05816

**Seguranca e coeficiente de segurancia em geotecnica
Safety and safety factor in engineering geology**

Nascimento, U.; Branco Falcão, Castel
Geotecnica (Agrupamento Port. Mec. Solos Rochas) 1, 31-46
p., 1971
Subfile B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: Portuguese Summary Languages: English
illus.: table
Descriptors: *engineering geology; *rock mechanics; *rocks; *brittle; *deformation; *cohesion; *mathematical models; *probability; *failure; *safety
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

774542 76-00788

A probabilistic approach to geologic investigations for hard-rock tunnels

Vick, Steven G.; Einstein, Herbert H.
Dames and Moore, Salt Lake City, Utah, USA
Int. Soc. Rock Mech., Congr. Proc. 3, Vol. 2, Part B
Advances in rock mechanics: reports of current research,
Aug. 10-15p., 1974
CODEN: 327UAA
Subfile B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
illus.
Descriptors: *engineering geology; *tunnels; *theoretical studies; *methods; *prediction; *conditions; *rock mechanics; *hard rocks; *probability analysis
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

774528 76-00774

Probability of pillar failure at Elliot Lake

Coates, D. F.
Int. Soc. Rock Mech., Congr. Proc. 3, Vol. 2, Part B:
Advances in rock mechanics: reports of current research,
990-996p., 1974
CODEN: 327UAA
Subfile: B
Doc Type: SERIAL Bibliographic Level: ANALYTIC
Languages: English Summary Languages: French
Descriptors: *Ontario; *engineering geology; *rock mechanics; *Elliot Lake; *mining geology; *excavations; *subsurface; *pillars; *strength; *failure; *field studies; *Canada
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

507225 69-10519

**O vozmozhnost' ispol'zovaniya teorii veroyatnostey dlya resheniya nekotorykh zadach inzhenernoy geologii
Use of probability theory for the solution of some problems in engineering geology**

Kolomenskiy, Ye. N.
Mosk. Univ., Vestn., Ser. 4, Geol. Vol. 23, No. 2, p.
85-90, illus., 1968
Subfile: B
Doc Type: SERIAL
Languages: Russian
Physical and mechanical properties of rocks, models
Descriptors: *Engineering geology; *Rock mechanics; *Methods; *probability theory
Section Headings: 22 (ENGINEERING & ENVIRONMENTAL GEOLOGY)

426027 66-12120-G

THE PROBABILISTIC NATURE OF FAILURE IN THE GEOLOGIC UNIVERSE, IN INTERNAT. CONF. STRATA CONTROL AND ROCK MECHANICS, 4TH, NEW YORK, 1984, PROC.

WINE, MALCOLM T.; HASSIALIS, MENELAOS D.; BOSHKOVI, STEFAN.
NEW YORK, COLUMBIA UNIV. PRESS, p. 324-329, 1984 (1985)
Subfile: C
Descriptors: *FAILURE; *PROBABILITY; *ROCK MECHANICS; *STATISTICAL CONCEPTS; *STRENGTH

416980 56-05020 N

The effect of stress concentrations on the stability of tunnels
Coates, D. F.

In Internat. Soc. Rock Mechanics Congress, 1st, Lisbon, 1986, Proc., V. 2
Lisbon, Portugal, Laboratorio Nacional Engenharia Civil O.
299-305, illus., tables, 1966
Subfile: N

With French and German abs.
Stress concentrations around an underground opening may theoretically exceed the strength of the rock mass. Deviations of actual rock properties from those of homogeneity and perfect elasticity can, however, modify theoretical stress distributions considerably. In addition, known variation of strength of rocks with volume of rock makes predictability of failure due to stress concentration questionable. Several experiments have been conducted which show that failure due to compressive stress concentrations can be predicted under favorable circumstances quite accurately. However, considering failure as a stochastic phenomenon, predictions should be in terms of probability of failure rather than certainty. As a result, it can be seen that a main requirement to improve correspondence between experimental and predicted results is to have better methods for determining mechanical properties of rock masses.

Descriptors: Engineering geology; Rock mechanics;
Tunnels; failure; compressive stress; effect; Stability;
stress concentration in rock

409214 65-12410-N

The probabilistic nature of failure in the geologic universe
Wane, Malcolm I.; Hassialis, Menelaos D.; Boshkov, Stefan

In Internat. Conf. Strata Control and Rock Mechanics, 4th, New York, 1984, Proc.
New York, Columbia Univ. Press p. 324-329, illus., 1964
1965

Subfile: N
Descriptors: Statistical methods; Engineering geology;
Probability applied to rock strength

